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## PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

February 25–March 23, 1940

The accompanying table summarizes the prevalence of eight important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended March 23, 1940, the number reported for the corresponding period in 1939, and the median number for the years 1935–39.

For the first time since this material has been presented in this way the incidence of all of the eight diseases was below the median expectancy for the 4-week period ended March 23.

*Influenza.*—The number of cases of influenza reported dropped from approximately 71,000 for the 4 weeks ended February 24 to approximately 33,000 for the 4 weeks ended March 23, a decline of more than 50 percent. The recent rise of this disease has been most perceptible in the South Atlantic, West South Central, and Pacific coast regions. During the week ended March 2 it was reported that there had been 10,035 cases of influenza in Madison County, Ind., since the first of the year, but other States in the East North Central group reported the normal seasonal incidence. The North Atlantic and West North Central regions apparently were not affected by the recent rise, the incidence in these regions being the lowest in recent years.

A comparison with recent years shows that the current incidence for the country as a whole was slightly more than 50 percent of the incidence during the corresponding period in 1939 and about 80 percent of the 1935–39 median figure for this period. Exceptions to the favorable picture for the whole country are seen in the East North Central and West South Central regions, where the numbers of cases for the current period were approximately twice the median expectancy, and minor increases were reported from the Mountain and Pacific regions; in all other regions the incidence was comparatively low.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period Feb. 25-Mar. 23, 1940, the number for the corresponding period in 1939, and the median number of cases reported for the corresponding period 1935-39<sup>1</sup>

Division	Current period	1939	5-year median	Current period	1939	5-year median	Current period	1939	5-year median	Current period	1939	5-year median
	Diphtheria			Influenza <sup>2</sup>			Measles <sup>3</sup>			Meningococcus meningitis		
United States <sup>1</sup> .....	1, 273	1, 724	2, 104	33, 101	63, 297	41, 476	30, 322	62, 298	62, 298	172	201	646
New England.....	26	32	39	48	274	274	4, 041	6, 313	7, 451	12	7	18
Middle Atlantic.....	176	333	375	245	638	319	3, 164	6, 011	14, 303	42	44	93
East North Central.....	199	339	366	2, 797	10, 317	1, 320	2, 671	5, 135	5, 135	33	21	92
West North Central.....	141	115	169	518	7, 357	1, 301	4, 500	6, 092	6, 092	4	11	43
South Atlantic.....	256	283	344	11, 834	15, 743	11, 970	2, 037	11, 873	10, 332	33	40	121
East South Central.....	105	115	157	2, 777	11, 404	10, 134	1, 255	1, 680	1, 680	19	27	73
West South Central.....	192	276	286	12, 158	12, 109	6, 881	2, 964	2, 763	2, 342	15	19	55
Mountain.....	71	81	81	1, 185	4, 314	791	2, 725	3, 501	3, 501	7	17	19
Pacific.....	107	150	144	1, 539	1, 141	1, 310	6, 965	18, 325	4, 348	7	15	16
	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
United States <sup>1</sup> .....	74	51	78	20, 341	21, 157	30, 157	309	1, 320	1, 290	299	515	423
New England.....	1	0	2	978	1, 406	1, 891	0	0	0	11	11	11
Middle Atlantic.....	8	3	8	7, 013	5, 405	7, 638	0	0	0	41	68	57
East North Central.....	19	11	12	7, 254	7, 796	10, 491	54	409	199	47	32	67
West North Central.....	2	2	6	1, 441	2, 308	3, 711	89	290	597	26	22	24
South Atlantic.....	7	11	10	1, 031	870	1, 175	10	8	11	47	98	62
East South Central.....	7	7	9	768	634	519	8	30	8	34	31	31
West South Central.....	12	6	8	357	587	587	98	312	81	47	221	93
Mountain.....	5	5	3	541	627	837	35	78	100	19	16	19
Pacific.....	13	6	11	958	1, 524	1, 524	15	193	193	27	16	24

<sup>1</sup>48 States. Nevada is excluded and the District of Columbia is counted as a State in these reports.

<sup>2</sup>44 States and New York City.

<sup>3</sup>47 States. Mississippi is not included.

*Diphtheria.*—For the 4 weeks ended March 23 there were 1,273 cases of diphtheria reported, as compared with 1,724, 2,104, and 1,776 for the corresponding period in 1939, 1938, and 1937, respectively. The incidence was relatively low all over the country, each section reporting an appreciable decline from the average expectancy.

*Measles.*—While the normal seasonal rise of measles occurred, the incidence continued at a comparatively low level. The number of cases (33,101) reported for the current period was only about 50 percent of the number recorded for the corresponding period in 1939 and about 80 percent of the 1935-39 median figure for the period. The only unfavorable incidence, as compared with recent years, occurred in the West South Central and Pacific regions; in the West South Central region the number of cases (2,964) was about 25 percent above the average seasonal level, while in the Pacific region the incidence (6,965 cases) was more than 60 percent above the normal seasonal incidence.

*Meningococcus meningitis.*—The incidence of meningococcus meningitis continued at a low level, the number of cases (172) reported for the 4 weeks ended March 23 being the lowest recorded for this period

in the 12 years for which these data are available. All regions participated in the low record.

*Poliomyelitis.*—The incidence of this disease (74 cases) was about 50 percent above that for the corresponding period in 1939, but it was slightly below the median level for the years 1935–39. For the first time since the 4-week period ended September 9, 1939, the number of cases for a 4-week period fell below the median expectancy for the corresponding period. The lowest incidence of this disease is usually reached during March or April.

*Scarlet fever.*—Scarlet fever incidence was also low, 20,341 cases for the current period, as compared with 21,157 for the corresponding period in 1939 and an average for recent years of approximately 30,000 cases. The East South Central region reported a few more cases than might normally be expected, but in all other regions the incidence was relatively low. For the country as a whole the current incidence is the lowest reported for this period in the 12 years for which these data are available.

*Smallpox.*—For smallpox, also, the comparison with recent years is favorable, the current incidence (302 cases) being the lowest on record for this period. Only one region, the West South Central, reported an excess over the expected seasonal incidence. The excess in that region was largely due to an increase of cases in Oklahoma, from 3 during the preceding 4 weeks to 71 cases for the 4 weeks ended March 23. The South Atlantic and East South Central regions reported about the normal incidence, while other regions reported very appreciable decreases from the 1935–39 median figures; the North Atlantic regions apparently remained free of the disease.

*Typhoid fever.*—Typhoid fever was also considerably below normal, 299 cases, as compared with 515 cases in 1939 and a median of 423 cases for the corresponding period in the years 1935–39. The incidence was significantly low in the Middle Atlantic, East North Central, South Atlantic, and West South Central regions; other regions reported about the normal seasonal incidence.

#### MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ended March 23, based on data received from the Bureau of the Census, was 12.3 per 1,000 population (annual basis), as compared with 13.0, 12.2, and 13.1 for the corresponding period in the years 1939, 1938, and 1937, respectively. With the exception of the year 1938, a nonepidemic year for influenza, when the rate was 12.2, the current rate is the lowest for this period since 1933.

## GEOGRAPHICAL DISTRIBUTION OF DIPHTHERIA MORTALITY IN THE UNITED STATES

By C. C. DAUER, *Epidemiologist, District of Columbia Health Department*

In 1920 approximately 150,000 cases of diphtheria were reported from 41 States, and nearly 14,000 deaths from this disease were registered in 35 States. In 1938 slightly more than 30,000 cases were reported from the entire country, while 2,600 deaths were registered. This constitutes a reduction of about 80 percent both in numbers of cases and deaths over a period of approximately two decades. Over this same period the mortality rate from diphtheria in the registration area declined 90 percent.

This decline in incidence and mortality has been accompanied by some definite changes in the geographical distribution of the disease. Mortality data from the States comprising the registration area previous to 1910 indicate that death rates from diphtheria in urban areas were considerably in excess of those for rural areas, the rates in 1910 being 25.0 and 16.0 per 100,000 population, respectively. In the past two decades this ratio gradually has been reversed so that in 1930 the rural rates in the registration area were slightly in excess. However, the registration area of 1910 was made up of a population predominantly urban, most of which was located in the northern and northeastern sections of the country. The registration area of 1910 had, in 1930, a diphtheria mortality rate in urban areas of 5.0 and a rural rate of 4.0.

Since 1910 there has been introduced into the registration area a population which has been predominantly rural in distribution, much of which has been located in the southern States where the decline in mortality has been slow. In 1920 many of the southern States had diphtheria death rates equally as high as those in the northern and northeastern sections, but, because of the slower rate of decline, the mortality is now considerably higher in the South. (See table 1.) This change in ratio of urban to rural mortality from diphtheria in the United States thus appears to have depended to a certain extent upon the introduction into the registration area of a predominantly rural population in which the decrease of mortality has been relatively slow as compared with other sections of the country.

One of the remarkable features about the occurrence of diphtheria in the United States has been the stability of the case fatality rates in the past two decades. This is all the more remarkable when the large amount of immunization given in this period is taken into consideration. As shown in table 1, for the two decades ending in 1938 there was no marked or consistent change in fatality rates within the various geographical sections, and, with few exceptions, in individual States. However, fatality rates have shown some variation when one

geographical section is compared with another. Fatality rates have been higher in certain southern and Mountain States than in other sections. These higher fatality rates probably reflect less complete reporting, but it is also conceivable that a high fatality rate may be the result of other factors, such as differences in virulence of the diphtheria organism, differences in the age distribution of cases, and quality and quantity of medical treatment. The operation of these three factors would be more probable in regions where the mortality rate is high.

In order to obtain a more accurate picture of the geographical distribution of diphtheria in the United States in recent years the numbers of deaths from this disease were obtained by counties for each State for two 5-year periods, 1929 to 1933 and 1934 to 1938, inclusive. The mortality rates per 100,000 population for each county are shown graphically on a map for each period (figs. 1 and 2). In this manner it is possible to demonstrate the areas of high and low mortality and also to show any changes in mortality during the 10-year period.

The data used in the preparation of these maps were obtained from vital statistics reports of certain States, from special tabulations furnished by State bureaus of vital statistics, and from the Division of Vital Statistics, Bureau of the Census. Deaths by place of usual residence were used when available. Rates were based on the 1930 census, using total populations. Mortality rates calculated on the basis of the population under 15 years of age would have been preferable if reasonably accurate estimates of population under 15 years could have been obtained for the 10-year period. There is no evidence that the general picture of the distribution would have been changed materially had age-specific rates been used.

The first map shows the average annual mortality rates for the period from 1929 to 1933, inclusive. The corresponding rate for the registration area was 4.9 for this period of years. The most conspicuous feature about the distribution of mortality was the large area of relatively high rates (two or more times higher than for the country as a whole) extending southwestward from Pennsylvania to Arizona. This extensive area embraced most of West Virginia, Kentucky, Tennessee, Arkansas, Oklahoma, Texas, and New Mexico. Fairly large groups of counties in certain bordering States were also located in this area of high mortality, particularly in southern Missouri, western Virginia and North Carolina, and northern Georgia, Alabama, and Mississippi. A few counties with high rates in other bordering States—Illinois, Indiana, Ohio, Pennsylvania, South Carolina, Louisiana, and Arizona—also must be included. South of the large area of high mortality, i. e., along the South Atlantic and Gulf coast lines, the average annual mortality rates for most of the counties were higher than the average for the sections north of the area.

TABLE 1.—Average annual mortality rates and case fatality rates, by States, 1919-1938

	Average annual mortality rates per 100,000 population				Case fatality rates, percent			
	1919-23	1924-28	1929-33	1934-38	1919-23	1924-28	1929-33	1934-38
New England.....	12.3	6.3	2.8	0.7	7.4	7.6	6.6	8.6
Maine.....	9.0	4.3	2.5	1.1	11.6	11.7	11.6	9.6
New Hampshire.....	11.5	5.6	2.6	.9	11.0	16.9	16.1	33.8
Vermont.....	8.0	4.7	1.7	.7	9.4	11.6	7.2	7.2
Massachusetts.....	15.2	8.0	3.6	.7	7.0	6.8	5.9	8.8
Rhode Island.....	15.5	7.9	4.4	.3	9.1	8.6	8.9	4.7
Connecticut.....	14.9	7.4	1.8	.8	6.6	7.3	5.5	7.2
Middle Atlantic.....	17.3	9.3	4.1	1.0	8.3	7.7	7.3	6.9
New York.....	15.4	8.1	2.7	.7	7.4	6.6	6.0	7.1
New Jersey.....	17.3	10.1	5.2	.9	8.0	7.7	7.6	5.6
Pennsylvania.....	19.2	9.7	4.5	1.4	9.6	8.9	8.6	7.2
East North Central.....	15.8	7.4	3.9	1.7	8.2	8.6	8.0	8.1
Ohio.....	13.3	6.9	2.9	2.0	7.0	7.2	6.8	7.6
Indiana.....	15.9	6.5	4.6	2.9	11.6	9.3	8.4	7.8
Illinois.....	17.0	7.2	5.4	1.8	7.7	8.8	7.9	8.2
Michigan.....	20.4	11.0	5.0	1.1	8.5	10.2	9.9	7.9
Wisconsin.....	12.6	5.5	1.9	.7	8.7	7.6	8.1	10.7
West North Central.....	12.5	5.2	3.2	1.6	6.2	8.0	7.6	7.1
Minnesota.....	9.7	5.1	1.5	.6	5.5	5.4	4.9	3.4
Iowa.....	9.8	4.6	2.1	1.2	( <sup>2</sup> )	13.0	10.1	8.0
Missouri.....	17.3	6.7	6.0	3.4	( <sup>2</sup> )	8.3	9.6	8.5
North Dakota.....	( <sup>1</sup> )	6.4	3.3	1.8	( <sup>2</sup> )	14.3	8.7	10.9
South Dakota.....	( <sup>1</sup> )	( <sup>1</sup> )	2.7	1.2	( <sup>2</sup> )	( <sup>2</sup> )	6.4	7.7
Nebraska.....	9.7	4.8	3.1	1.3	10.5	12.0	7.3	7.3
Kansas.....	16.1	3.7	3.6	1.8	5.8	6.1	7.5	7.3
South Atlantic.....	11.8	8.4	6.4	3.9	7.5	8.4	8.8	9.6
Delaware.....	11.3	8.0	5.9	1.2	11.6	14.2	9.6	5.4
Maryland.....	12.5	6.8	3.4	1.3	7.1	6.2	5.3	4.5
District of Columbia.....	14.9	7.0	4.8	3.3	( <sup>2</sup> )	( <sup>2</sup> )	5.6	4.5
Virginia.....	15.6	8.6	7.6	4.8	7.4	7.1	6.8	8.2
West Virginia.....	( <sup>1</sup> )	9.2	9.4	6.8	( <sup>2</sup> )	14.2	13.9	13.1
North Carolina.....	13.5	10.5	7.8	5.1	7.2	8.8	8.2	8.2
South Carolina.....	10.9	8.9	6.4	4.0	7.4	7.3	5.7	8.2
Georgia.....	( <sup>1</sup> )	7.8	6.1	4.8	( <sup>2</sup> )	( <sup>2</sup> )	16.6	13.2
Florida.....	7.1	7.8	4.6	3.6	10.7	11.4	13.1	12.4
East South Central.....	15.3	9.1	9.5	5.3	-----	24.1	14.4	14.4
Kentucky.....	18.4	10.2	11.9	6.6	( <sup>2</sup> )	35.6	20.9	17.3
Tennessee.....	14.1	9.9	9.9	5.7	( <sup>2</sup> )	19.0	14.2	14.9
Alabama.....	( <sup>1</sup> )	8.9	7.6	4.7	( <sup>2</sup> )	12.0	11.4	11.3
Mississippi.....	13.4	7.6	8.5	4.1	10.9	10.7	11.7	14.1
West South Central.....	-----	9.8	9.3	5.0	-----	-----	15.5	13.7
Arkansas.....	( <sup>1</sup> )	8.4	8.8	5.5	( <sup>2</sup> )	( <sup>2</sup> )	26.2	20.8
Louisiana.....	7.0	7.3	5.9	4.1	15.0	13.6	8.4	10.1
Oklahoma.....	( <sup>1</sup> )	( <sup>1</sup> )	13.2	4.7	( <sup>2</sup> )	( <sup>2</sup> )	16.7	19.5
Texas.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	5.7	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	12.2
Mountain.....	11.9	7.3	4.2	2.7	10.7	11.2	10.7	9.9
Montana.....	10.5	5.5	1.6	1.9	12.0	9.8	8.7	10.0
Idaho.....	10.3	5.6	2.5	1.3	( <sup>1</sup> )	12.0	9.8	12.0
Wyoming.....	8.1	5.8	2.0	1.8	( <sup>1</sup> )	15.3	11.3	12.0
Colorado.....	19.7	10.9	3.3	3.5	10.4	11.1	9.2	9.2
New Mexico.....	( <sup>1</sup> )	( <sup>1</sup> )	12.1	5.3	( <sup>2</sup> )	( <sup>2</sup> )	11.4	11.5
Arizona.....	( <sup>1</sup> )	5.7	7.0	5.9	( <sup>2</sup> )	( <sup>2</sup> )	12.2	12.2
Utah.....	10.9	10.1	2.2	1.0	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )	4.3
Nevada.....	( <sup>1</sup> )	( <sup>1</sup> )	3.0	.8	( <sup>2</sup> )	( <sup>2</sup> )	16.6	7.3
Pacific.....	10.2	7.2	2.3	1.1	7.3	5.9	6.3	6.5
Washington.....	8.4	6.0	2.1	.6	8.8	7.3	7.5	8.6
Oregon.....	8.6	7.7	1.8	.8	7.3	6.9	8.2	8.7
California.....	13.7	7.8	3.1	1.9	7.1	5.5	6.0	6.3
Registration area.....	14.8	7.9	4.9	2.5	-----	-----	-----	-----

<sup>1</sup> Not in registration area.<sup>2</sup> Data not available.

In other parts of the country, especially in the West North Central section and in certain Mountain States, some isolated counties

had high rates, i. e., 10.0 and over. In many instances these counties had small populations in which the occurrence of one or two deaths in the 5-year period naturally resulted in relatively high rates. In other parts of the country comparatively low mortality rates were to be found.

The map showing the average annual mortality rates for the 1934 to 1938 period shows a considerable amount of change from the preceding period. The rate for the registration area declined from 4.9 in the period 1929-33 to 2.5 in 1934-38. A large proportion of the counties located in the area of high mortality previously described showed a considerable decrease in mortality but this region still had rates well above that for the country as a whole. Relatively high rates, 10.0 and over, still were to be found in a fairly large number of counties located in West Virginia, Kentucky, Tennessee, and sections of Virginia, North Carolina, Missouri, Arkansas, Texas, and New Mexico. Along the South Atlantic seaboard the average rates, although lower than in the high rate region, were again higher than in the northern, northwestern and far western sections of the country. In these latter sections, where diphtheria mortality had been comparatively low in the 1929 to 1933 period, there was also a decline in rates equal to or greater than that in the high mortality region. Colorado and Montana showed a slight increase in rates over the preceding period, and Wyoming and Arizona had only a slight decrease, 10 and 16 percent, respectively. In Colorado a group of counties in the western part of the State had higher rates than previously, which appears to account for the increase in the rate for the State as a whole.

From the standpoint of epidemiology the unusual geographical distribution of diphtheria mortality in the United States during the past two decades is a problem of importance as well as of interest. It would be necessary before attempting to explain the wide differences in distribution to have specific information regarding certain factors for different sections of the country. Regional variations in the utilization of and accessibility to adequate medical care (serum therapy), in the amount of natural immunization (subclinical infections), in the extent of artificial immunization, in the incidence of carriers of virulent diphtheria bacilli, and in types or strains, virulence, and pathogenicity of the diphtheria bacillus, would have to be taken into consideration in attempting an explanation. However, data on these factors are either entirely lacking or too meager for such a purpose.

From the standpoint of public health administration it is encouraging that such a marked decrease in diphtheria mortality occurred in practically all sections of the country. Because of a lack of definite information, it cannot be determined to what extent this reduction

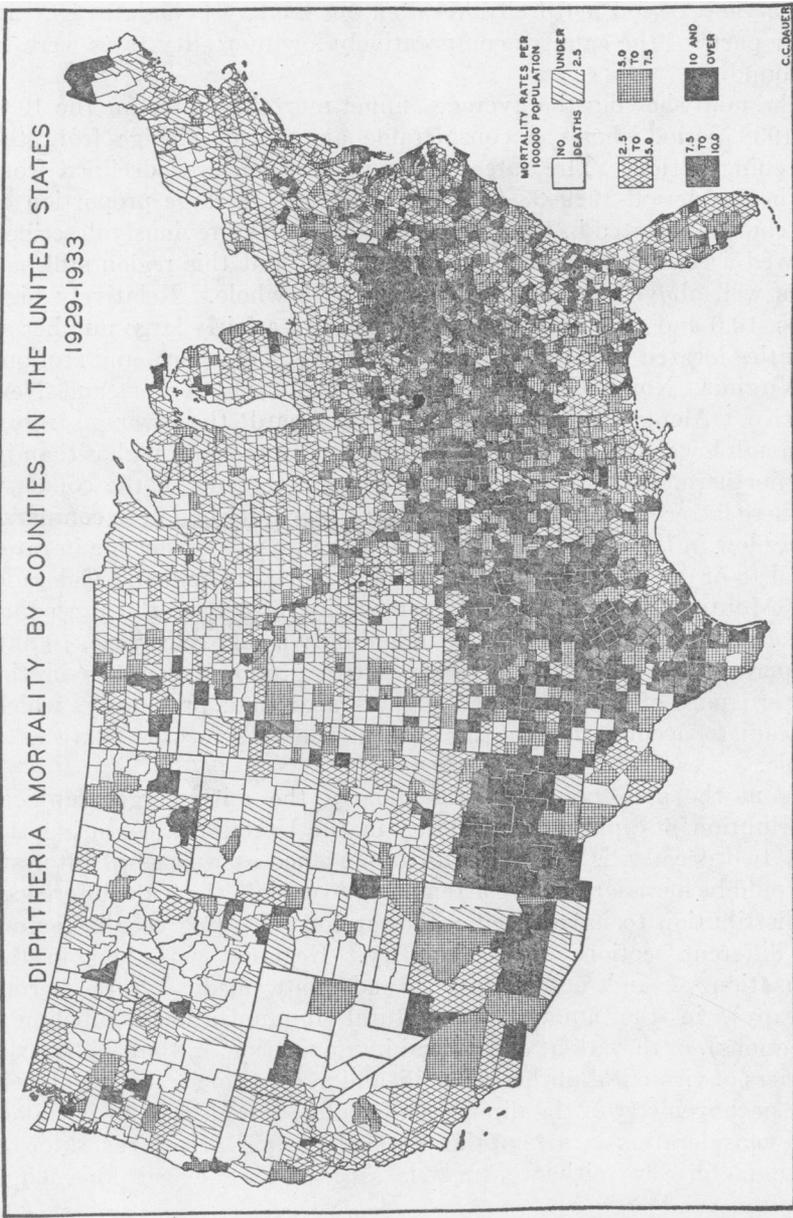


FIGURE 1.—Average annual mortality rates from diphtheria per 100,000 population, by counties, in the United States, 1929-1933.

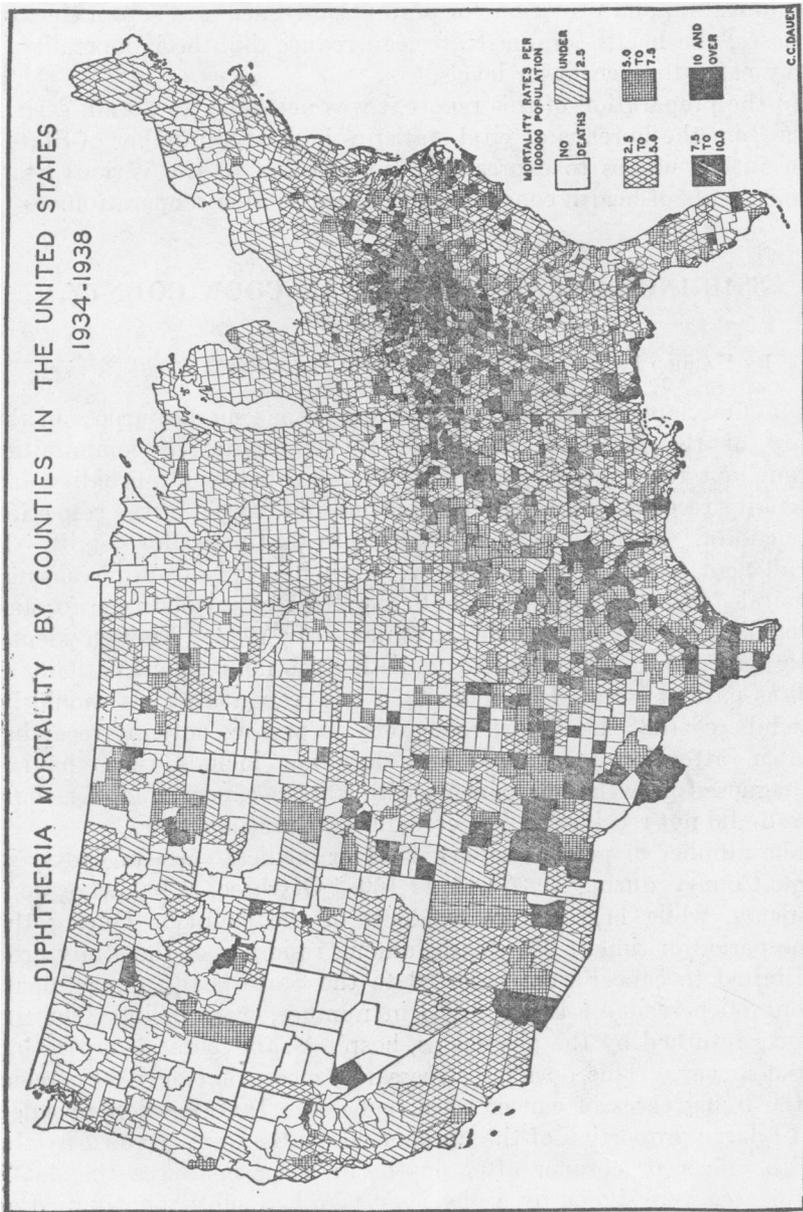


FIGURE 2.—Average annual mortality rates from diphtheria per 100,000 population, by counties, in the United States, 1934-1938.

was due to artificial immunization and what part may have been due to the operation of other factors. However, by means of artificial immunization and provision for prompt and adequate serum therapy of cases, the health administrator can reduce diphtheria mortality in many cases to even lower levels.

In the preparation of this report it was necessary to obtain certain data from the bureaus of vital statistics in a large number of States. The author wishes to express his appreciation to the various State departments of health concerned for their effective cooperation.

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## THE INCIDENCE OF CANCER IN COOK COUNTY, ILLINOIS, 1937<sup>1</sup>

By HAROLD F. DORN, *Statistician, United States Public Health Service*

The first paper in this series (1) discussed the general purpose of the study of the incidence of cancer in representative communities throughout the United States, the difference between morbidity and mortality records, and the precise procedure followed in the collection of the data. Reference should be made to that paper for details. It is sufficient to state that records were solicited only from physicians, hospitals, and clinics of all patients seen, treated, or observed for any malignant growth during the calendar year 1937. Enough identifying information was obtained to distinguish nonresident patients as well as patients treated by more than one respondent. It should be remembered that this report refers only to persons actually receiving medical attention for cancer and does not include those having undiagnosed growths nor persons with known cancer who, for some reason, did not receive medical care during the study year.

The number of persons reported under medical care for cancer in Cook County during 1937 was 14,160. Of these, 2,490 were non-residents, while 11,670 were residents of the county. During the same period of time, 5,367 deaths among residents of the study area attributed to cancer were reported to the State health department. About 60 percent of these, 3,136 in number, were included in the reports returned by the physicians, hospitals, and clinics cooperating in the survey. This does not necessarily mean that only 60 percent of the living cases of cancer were reported. Investigation revealed that a large proportion of the unreported deaths were certified by the health officer or coroner after death; in other instances the death certificates were signed by a physician who had subsequently died or

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<sup>1</sup> From the Division of Public Health Methods, National Institute of Health.

This is the second in a series of papers on the incidence of cancer throughout the United States. The data were collected under the supervision of Arthur J. McDowell and Bernard D. Koteen. Miss Bess A. Cheney was in immediate charge of the tabulation of the records which was done as a project of the Work Projects Administration.

moved away. Whenever the physician who had signed the death certificate could be located he was requested to supply information concerning the case, but usually he would report that the case had been attended only at death, so that very little information was available. Undoubtedly, a small proportion of living cases of cancer were not reported since some physicians had to depend upon memory instead of written records. Fortunately these physicians were in general practice as a rule and undoubtedly saw only a limited number of cases of cancer or even none at all. However, the number of known cases of cancer among residents of the county is probably somewhat larger than that actually reported.

Although names of 7,728 physicians in the county were obtained from various sources, only 5,903 doctors were located; the remainder had died, moved away, retired, or were no longer in practice. Sixty-four percent, 3,757, of the physicians stated that they either did not treat cancer or had had no cases during the study year. Of those reporting cases, 65 percent reported 3 cases or less, indicating that the average practitioner treats only a very small number of cases during a year's time. Reports were obtained from all but 150 of the 5,903 physicians located.

Table 1 shows the number of cases reported by varying numbers of physicians and hospitals. About 30 percent of the cases were reported only by a physician and supposedly did not receive any treatment from a hospital during 1937. Approximately twice as many patients obtained medical care from hospitals or clinics only.

TABLE 1.—*Number and percentage of cases of cancer reported by specified number of physicians or hospitals, Cook County, Ill., 1937*<sup>1</sup>

Number of physicians or hospitals	Number of cases	Percentage
1 physician only.....	4,049	28.59
2 physicians only.....	147	1.04
3 physicians only.....	6	.04
Total.....	4,202	29.7
1 hospital only.....	8,038	56.8
2 hospitals only.....	309	2.2
3 hospitals only.....	18	.1
Total.....	8,365	59.1
1 physician, 1 hospital.....	1,279	9.0
1 physician, 2 or more hospitals.....	142	1.0
2 or more physicians, 1 hospital.....	144	1.0
2 or more physicians, 2 or more hospitals.....	28	.2
Total physicians and hospitals.....	1,593	11.2
Total cases.....	14,160	100.0

<sup>1</sup> Unless specifically stated otherwise, the number of cases used is the total number of reported cases including both residents and nonresidents and excluding deaths not reported as a case.

Since the value of a study of this nature depends not only upon the completeness with which the number of cases is reported, but also

upon the accuracy with which the diagnosis is made, the method of confirmation of diagnosis was requested for each case. Table 2 shows that about 70 percent of the diagnoses were confirmed by a microscopic examination of tissue which may have been obtained through biopsy, operation, or post mortem. The data reveal that a larger proportion of microscopically verified diagnoses occur among patients reported by hospitals than among those whose records were obtained only from a physician.

TABLE 2.—*Number and percentage of cases of cancer with a microscopically confirmed diagnosis, and whether or not reported by a hospital, Cook County, Ill., 1937*

Agency	Total number of cases	Cases with microscopic diagnosis	Percent
Hospital.....	9,959	7,326	73.6
Physician only.....	4,201	2,537	60.4
Total.....	14,160	9,863	69.7

For living cases, the accessibility of the tissue or organ affected is an important factor in determining whether or not the diagnosis is confirmed by a microscopic examination. However, certain forms of cancer such as cancer of the skin are frequently diagnosed by clinical evidence only. Less than one-half of the diagnoses of cancer of the esophagus, stomach and duodenum, liver and biliary passages, lung and pleura, and brain were confirmed microscopically. The corresponding percentages for breast, buccal cavity, and genito-urinary system were 85, 77, and 77, respectively. Malignant tumors of the brain, which frequently are referred to a brain specialist, were the only type with a higher percentage of microscopically confirmed diagnoses reported by physicians than by hospitals (table 3).

There are several ways in which the incidence of cancer may be expressed. One is analogous to a death rate; that is, the number of cases of cancer per 100,000 population. Because of the length of time since the last general census of population, it is difficult to obtain accurate estimates of population. For this reason, another measure of the incidence is used here, namely, the ratio of the number of cases to the number of reported deaths. If a reasonably accurate estimate of the death rate is available, the case rate of illness can be estimated by multiplying the death rate by the ratio of cases to deaths.

The number of cases alive at any time during the year per recorded death from cancer was 2.6 (table 4 and fig. 1). The ratio was higher for females than for males and higher for the white than for the colored population. Less than twice as many cases as deaths were reported for colored males, a fact which indicates that treatment is not generally received until the disease is too advanced for successful therapy. The death rate from cancer in Cook County around the date of the last

census was about 120 per 100,000, indicating that the case rate of illness was in the neighborhood of 325 to 350 per 100,000 in 1937.

TABLE 3.—Percentage of cases of cancer with a microscopically confirmed diagnosis, by primary site, and whether or not reported by a hospital, Cook County, Ill., 1937

Primary site	Percentage of cases with microscopically confirmed diagnosis for—		
	All cases	Cases reported by hospitals	Cases reported only by a physician
Buccal cavity, pharynx.....	77.2	85.8	58.5
Lip.....	70.1	83.7	40.8
Tongue.....	79.3	86.3	65.8
Others.....	82.6	87.4	71.3
Digestive tract.....	57.0	61.7	43.9
Esophagus.....	49.6	52.9	37.3
Stomach, duodenum.....	43.1	49.3	25.7
Intestines.....	62.6	65.4	55.0
Rectum, anus.....	75.9	80.4	62.4
Liver, biliary passage.....	48.1	54.4	37.4
Pancreas.....	50.5	52.4	43.7
Mesentery, peritoneum.....	87.8	91.7	76.9
Respiratory system.....	66.1	69.0	55.4
Larynx.....	86.5	89.2	77.2
Lungs, pleura.....	49.3	53.6	31.7
Others.....	90.0	88.7	94.4
Genito-urinary system.....	76.9	89.2	70.4
Uterus.....	79.5	81.3	74.8
Kidneys.....	72.8	76.5	59.5
Prostate.....	62.9	68.9	45.2
Bladder.....	75.3	76.0	72.6
Others.....	85.5	87.5	80.3
Breast.....	84.9	87.0	81.3
Skin.....	55.9	64.0	45.9
Brain.....	47.5	42.7	70.8
Bones (except jaw).....	71.1	73.0	66.2
Others.....	74.5	80.5	58.6
Total.....	69.7	73.6	60.4

TABLE 4.—Number of reported cases, number of recorded deaths, and the ratio of cases to deaths from cancer, by sex and color, Cook County, Ill., 1937<sup>1</sup>

	Total <sup>2</sup>			White			Colored		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Cases <sup>3</sup> .....	13,901	6,033	7,868	12,842	5,713	7,129	671	203	468
Deaths.....	5,367	2,642	2,725	5,054	2,518	2,536	295	114	181
Cases per death <sup>4</sup> .....	2.6	2.3	2.9	2.5	2.3	2.8	2.3	1.8	2.6

<sup>1</sup> Resident cases and deaths only.

<sup>2</sup> Includes cases and deaths of unknown color.

<sup>3</sup> Includes deaths not reported as a case.

<sup>4</sup> The higher ratio for the total population than for either the white or colored populations arises from the inclusion of cases of unknown color in the total population.

Caution must be used in interpreting the ratio of cases to deaths as a measure of the prevalence of cancer. Although the number of deaths attributed to cancer can be fairly definitely determined, it is very difficult to obtain comparable information for the cases. How shall

a case of cancer be defined? Obviously the case must be diagnosed before it can be counted, so that the total number of diagnosed cases will almost always be smaller than the actual number of cases in the population. Shall only cases receiving some form of treatment be counted? If this definition were adopted, all cases under observation would be excluded so that the number of reported cases would be appreciably less than the actual number of cases in the population. But if cases under observation are to be reported, the total number of cases will be affected by the thoroughness with which cases are followed after treatment.

In this study a report was requested for each case seen, observed, or treated during the study year. Consequently the ratio of cases to deaths will be affected by variations in the completeness with which cases not under treatment are reported. In Cook County, 91.6 per-

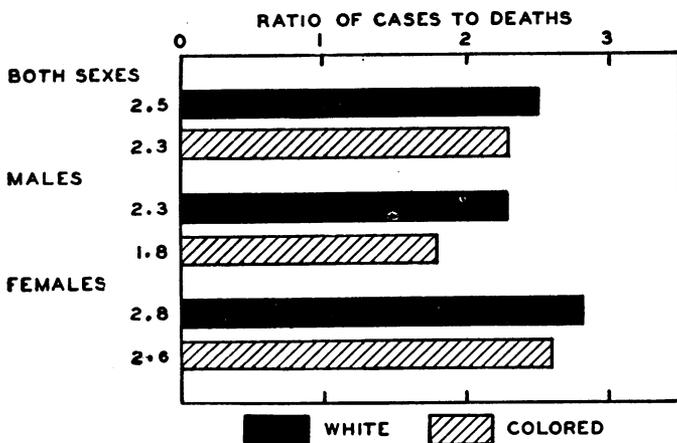


FIGURE 1.—Number of cases reported alive at any time during the year per recorded death from cancer during the year, by sex and color, Cook County, Ill., 1937.

cent of the reported cases received some treatment during the study year, while in Atlanta, Ga., only 75.5 percent of the reported cases were receiving treatment. This difference, in itself, increases the ratios of cases to deaths in Atlanta relative to that in Cook County.

Preliminary results for Detroit and Pittsburgh indicate corresponding percentages of 77.1 and 81.8. The reason for the lower percentage under observation in Chicago is unknown. Conceivably it may result from a failure to follow cases after treatment is stopped or from the fact that persons with cancer do not seek treatment until the disease is so far advanced that death occurs during the course of treatment.

Although cancer is primarily a disease of late adult life, table 5 shows that it occurs at all ages. About 60 percent of the females and 50 percent of the males reported as receiving medical treatment for cancer were in the main productive years of life, 30 to 60 years of age.



percent. As a group, the digestive tract included more than one-third of the sites reported, and the genito-urinary system included another one-fifth, so that the two combined accounted for more than one-half of the total number of cases (fig. 2).

The distribution of cases by primary site was strikingly different for females, 56 percent of whom had cancer of the breast or uterus. Due to the predominance of these two sites, no other part of the body was reported with marked frequency.

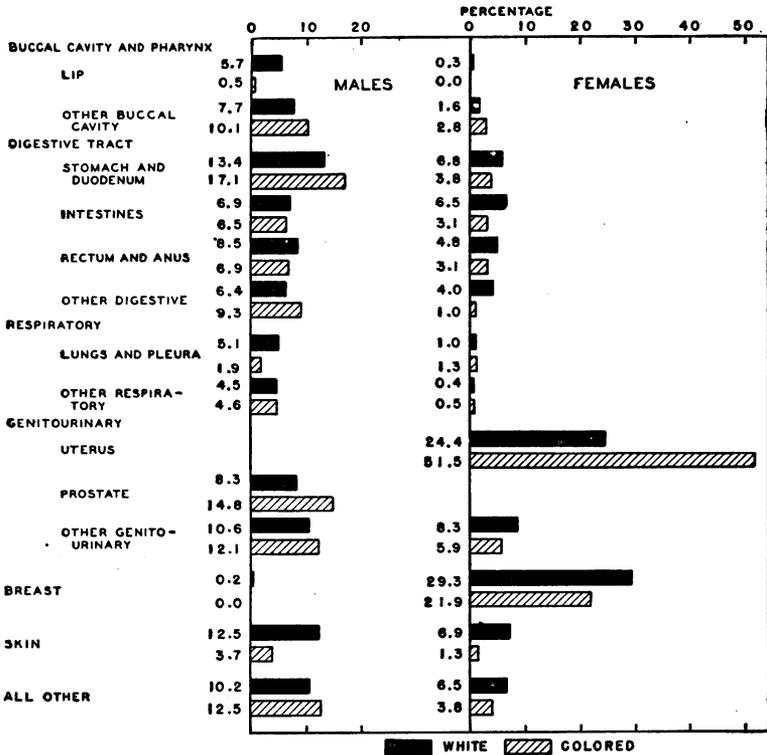


FIGURE 2.—Percentage distribution of cases of cancer by primary site, sex, and color, Cook County, Ill., 1937.

This concentration of the type of malignant neoplasm reported was more noticeable among colored than among white females. Among white women, 54 percent of the cases had cancer of the uterus or breast, but 73 percent of the cases among colored women were reported to have cancer of these two sites. Cancer of the genito-urinary system as a whole occurred more commonly among Negroes than among whites for both males and females. On the other hand, skin cancer was only about one-fourth as frequent among the colored cases. In this connection it should be remembered that the frequency of occurrence of cancer of different sites depends to a certain extent upon

the age distribution of the two groups, since not all lesions develop at the same age.

Table 6a presents the percentage distribution by sex and primary site of the cases first seen during the study year, 1937. The principal difference between these percentages and those in table 6 is the greater frequency of sites in the digestive tract among the cases first seen during 1937. This is in agreement with expectation, since the forms of cancer which are less likely to be cured should be found relatively more frequently among new cases.

TABLE 6a.—Percentage distribution of cases of cancer first seen in 1937 by primary site and sex, Cook County, Ill.

Primary site	Male	Female	Primary site	Male	Female
Buccal cavity, pharynx.....	11.2	1.7	Respiratory system.....	9.7	1.8
Lip.....	4.4	.3	Larynx.....	3.3	.2
Tongue.....	2.4	.3	Lungs, pleura.....	5.5	1.4
Mouth.....	.7	.2	Others.....	.9	.2
Jaw.....	1.1	.4	Genito-urinary system.....	19.3	33.2
Pharynx.....	.6	.....	Uterus.....	.....	25.0
Others.....	2.0	.5	Kidneys.....	2.2	.8
Digestive tract.....	39.1	24.7	Bladder.....	6.1	1.9
Esophagus.....	3.5	.4	Prostate.....	8.9	.....
Stomach, duodenum.....	15.7	7.5	Others.....	2.1	5.5
Intestines.....	7.5	7.4	Breast.....	.2	25.8
Rectum, anus.....	8.3	5.0	Skin.....	10.8	6.1
Liver, biliary passage.....	1.9	3.0	Brain.....	1.6	.8
Pancreas.....	1.7	1.0	Bones (except jaw).....	2.1	1.0
Mesentery, peritoneum.....	.5	.4	Others.....	6.0	4.9
			Total.....	100.0	100.0

Since the various forms of therapy now in use are not uniformly effective against all types of lesions, and since some tumors are more malignant than others, the frequency of occurrence of different sites varies considerably between living and dead cases (table 7). The principal sites which occur more frequently among the living cases are the buccal cavity and skin. Somewhat smaller differences exist for the uterus and breast. On the other hand, cancer of the digestive tract, especially of the stomach and intestines, and to a lesser extent cancer of the respiratory system, are relatively more frequent as causes of death (fig. 3).

Although it is not possible to determine accurately the age at which the different organs and tissues are most likely to develop cancer, the data in table 8 do reveal the ages when lesions have become sufficiently advanced to cause the patient to seek treatment. The age at which cancer begins to develop is, of course, somewhat younger than that shown in this table. It is evident that the location of the primary site of cancer varies considerably with the age of the patient. Two parts of the body, the brain and the skeletal system, are especially likely

to be attacked by cancer at an early age; 57 percent of the brain cases and 48 percent of the bone cases were less than 45 years of age, whereas the corresponding percentage for all cases was only 20.

TABLE 7.—Percentage distribution by primary site and sex of reported cases and recorded deaths from cancer, Cook County, Ill., 1937

Primary site	Total male		Total female	
	Cases	Deaths	Cases	Deaths
Buccal cavity, pharynx.....	12.6	6.4	1.5	0.9
Lip.....	5.5	.6	.3	.0
Tongue.....	2.8	1.8	.4	.1
Mouth.....	.8	.6	.1	.1
Jaw.....	1.1	.9	.4	.3
Pharynx.....	.6	1.2	.1	.2
Others.....	1.8	1.3	.2	.2
Digestive tract.....	35.0	54.7	20.3	42.3
Esophagus.....	3.1	5.6	.4	1.3
Stomach, duodenum.....	13.3	22.7	5.8	13.4
Intestines.....	6.8	9.9	6.2	12.3
Rectum, anus.....	8.4	7.4	4.6	4.4
Liver, biliary passage.....	1.5	4.8	2.2	7.4
Pancreas.....	1.5	3.9	.8	2.9
Mesentery, peritoneum.....	.4	.4	.3	.6
Respiratory system.....	9.5	12.2	1.4	3.0
Larynx.....	3.5	2.5	.2	.0
Lungs, pleura.....	4.7	7.3	.9	2.6
Others.....	1.3	2.4	.3	.4
Genito-urinary system.....	19.3	17.8	34.3	29.7
Uterus.....			26.4	20.5
Kidneys.....	2.0	2.2	.8	1.1
Bladder.....	6.4	6.1	1.9	2.4
Prostate.....	8.5	8.4		
Others.....	2.4	1.1	5.2	5.7
Breast.....	.2	.3	29.2	17.7
Skin.....	12.4	1.2	6.5	.9
Brain.....	1.4	.5	.6	.4
Bones (except jaw).....	2.3	1.7	1.1	1.0
Others.....	7.3	5.2	5.1	4.1
Total.....	100.0	100.0	100.0	100.0

About one-half of the persons with cancer were from 45 to 64 years of age, inclusive. With the exception of lesions of the brain, bones, and prostate the proportion of cases in this age period did not vary greatly among the different organs or tissues involved. Malignant tumors of the respiratory system were the outstanding exception to this statement; nearly two-thirds (64 percent) of such cases were in the age group 45 to 64.

The greatest concentration of cases among the aged, here considered to be 65 or more years of age, is shown by malignant growths of the pancreas. Nearly two out of every three cancers of the pancreas occurred among persons in this age group as compared with an average of one in four for all forms of cancer combined. Other tissues or organs with a larger than average proportion of cases among elderly persons were the tongue, bladder, digestive system, and skin.

The data in table 8 were arranged to indicate the age periods when particular parts of the body were most likely to develop cancer. But, owing to the fact that some forms of cancer occur more frequently than others, these data do not show the relative importance of the various sites at each age. In figure 4 the relative frequency by age is shown for certain broad groups of sites.

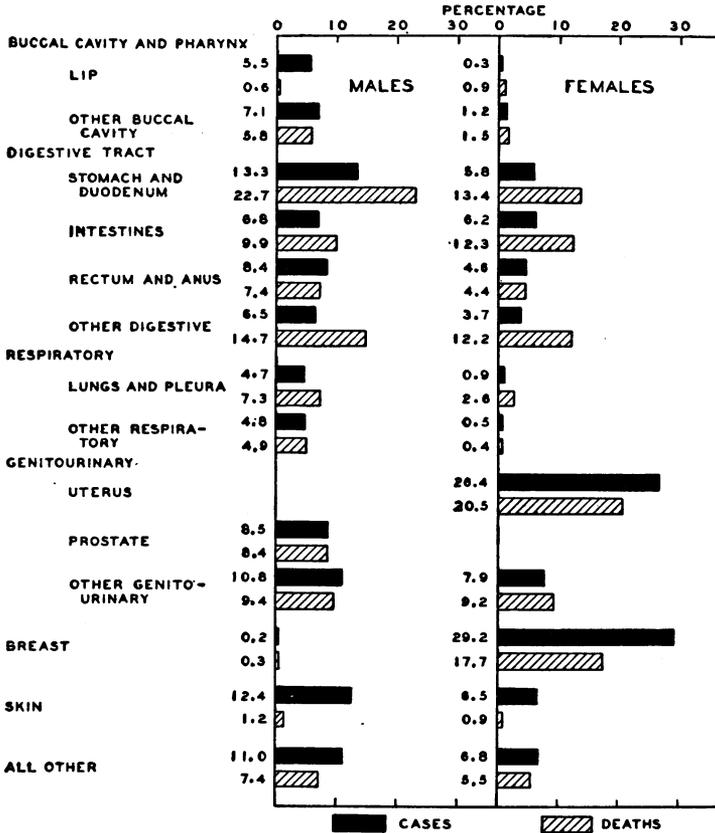


FIGURE 3.—Percentage distribution of reported cases of cancer and recorded deaths from cancer by primary site and sex, Cook County, Ill., 1937.

Among children and adolescents, the brain and bones are the most frequent sites of cancer, followed closely by the digestive tract, genito-urinary system, and skin. But throughout most of adult life until about age 75, the majority of sites affected by cancer are in the digestive tract, the genito-urinary system, and breast. The relative frequency of the latter two decreases somewhat after 75 years of age, when skin cancer again becomes comparatively more common.

TABLE 8.—Percentage distribution of cases of cancer by age and primary site, Cook County, Ill., 1937

Primary site	Under 25	25-34	35-44	45-54	55-64	65-74	75 and over	Un-known	Total
Buccal cavity, pharynx.....	1.1	2.3	13.7	23.6	25.7	21.2	8.8	3.6	100
Lip.....		1.3	18.2	28.1	24.1	18.0	6.3	4.0	100
Tongue.....	.4	.9	9.3	23.6	26.7	24.4	10.7	4.0	100
Others.....	2.6	4.0	11.9	19.4	26.6	22.4	10.1	3.0	100
Digestive tract.....	.6	2.3	10.1	22.6	28.8	24.2	9.3	2.1	100
Esophagus.....		1.3	6.3	19.8	36.7	24.1	10.5	1.3	100
Stomach, duodenum.....	.2	1.4	8.6	22.5	30.5	24.6	10.2	2.0	100
Intestines.....	1.0	3.1	11.3	23.2	25.6	24.9	9.5	1.4	100
Rectum, anus.....	.7	3.5	12.4	22.8	25.9	24.5	6.9	3.3	100
Liver, biliary passage.....	.7	.4	7.8	20.0	33.3	24.1	11.9	1.8	100
Others.....	1.9	3.4	10.6	26.1	30.4	18.4	7.3	1.9	100
Respiratory system.....	1.7	2.7	13.8	33.9	29.9	12.0	3.3	2.7	100
Lungs, pleura.....	1.9	3.1	12.3	33.2	32.7	11.8	3.1	1.9	100
Others.....	1.5	2.2	15.7	34.7	26.3	12.4	3.6	3.6	100
Genito-urinary system.....	.6	4.9	17.7	25.7	24.0	19.3	6.4	1.4	100
Uterus.....	.1	6.6	22.7	31.7	23.1	11.8	2.6	1.4	100
Bladder.....	.2	1.6	10.4	24.5	26.1	27.8	8.5	.9	100
Prostate.....		.5	1.2	7.3	25.6	43.0	20.8	1.6	100
Others.....	2.4	6.4	22.9	25.4	23.5	14.2	3.6	1.6	100
Breast.....	.6	4.6	20.1	30.0	24.4	14.1	3.6	2.6	100
Skin.....	1.9	2.2	10.9	20.4	25.1	20.2	10.9	8.4	100
Brain.....	21.3	9.2	26.3	22.7	17.7	2.1		.7	100
Bones (except jaw).....	20.1	7.9	20.1	19.7	20.1	8.4	2.5	1.2	100
Others.....	5.0	6.9	17.9	23.3	21.2	16.3	5.7	3.7	100
Total.....	1.6	3.8	15.0	25.0	25.6	19.2	7.0	2.8	100

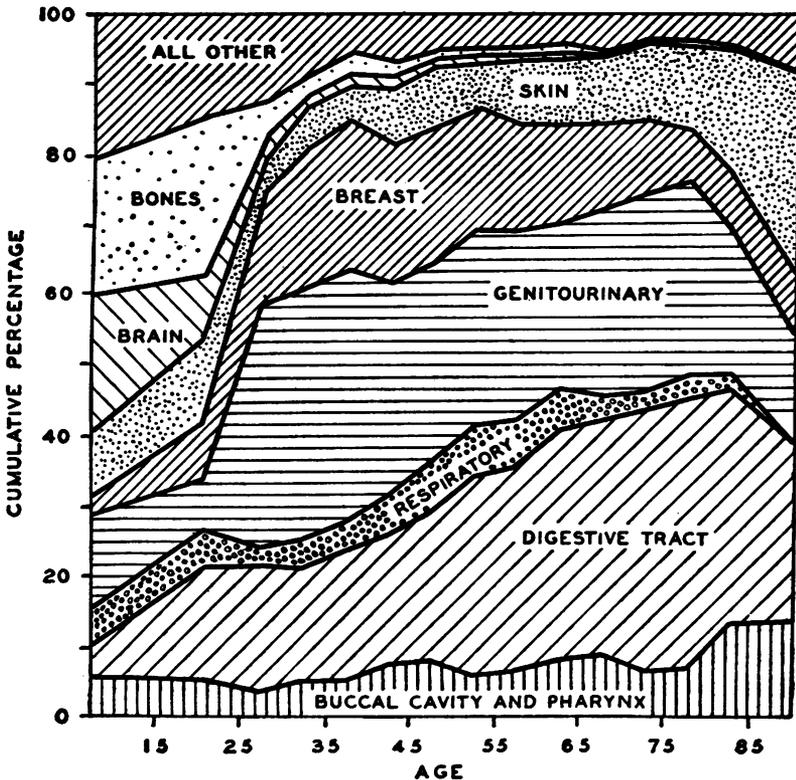


FIGURE 4.—Percentage distribution of cases of cancer by primary site and age, Cook County, Ill., 1937.

The statement is often made that if medical treatment is begun at a sufficiently early stage in the development of a malignant growth the cancer will either be "cured" or its development arrested so that the patient may frequently expect to live several additional years. It was hoped that this study would provide information concerning this point, but owing to the fact that current records are not uniformly available for cancer patients discharged as "cured," the reported data are incomplete and include, as a rule, only cases receiving treatment at some time during the calendar year. The number of reported cases classified by the number of months since the diagnosis<sup>2</sup> was made and by vital condition at the end of the study year is shown in table 9.

TABLE 9.—*Number and percentage of cases of cancer by the number of months since diagnosis, and vital condition, Cook County, Ill., 1937*

Number of months since diagnosis <sup>1</sup>	Percentage			Number		
	All cases	Cases dead at end of year	Cases alive at end of year	All cases <sup>1</sup>	Cases dead at end of year	Cases alive at end of year
Under 6.....	47.9	62.8	37.0	6,780	2,720	2,921
6-11.....	23.9	18.2	27.7	3,385	788	2,186
12-17.....	8.6	7.6	9.8	1,210	329	771
18-23.....	5.2	3.1	6.9	743	134	546
24-29.....	3.1	2.3	3.7	445	98	293
30-35.....	2.2	1.3	3.0	314	55	233
36-41.....	1.7	.9	2.4	246	38	188
42-47.....	1.3	.6	1.8	188	27	142
48-53.....	.9	.5	1.2	133	20	95
54-59.....	.8	.3	1.0	111	14	79
60 and over.....	4.0	2.0	5.5	562	88	429
Unknown.....	.4	.4	.0	43	18	10
Total.....	100.0	100.0	100.0	14,160	4,329	7,893

<sup>1</sup> Includes cases of unknown vital condition at end of year.

<sup>2</sup> Each interval includes 6 months' duration. The first interval, under 6, includes cases diagnosed from July through December 1937 and in addition all cases who died less than 6 months after diagnosis. A similar procedure was followed in classifying cases into the other duration groups.

Nearly one-half of the patients had been under medical care for cancer less than 6 months. Another one-fourth had been under medical care from 6 months to a year, so that, in all, about three-fourths of the cases were of less than 1 year's duration (table 10). When only the fatal cases are considered, it is found that 63 percent were diagnosed within 6 months prior to death and another 18 percent were diagnosed from 6 months to a year prior to death. Although the corresponding percentages for the surviving cases are high, they are considerably less than those for the fatal cases. Twenty-five percent of the surviving cases had lived at least 18 months since diagnosis, as compared with only 10 percent for the fatal cases. It

<sup>3</sup> This is not necessarily the number of months since the first diagnosis of cancer was made. It is the number of months since diagnosis by a physician who treated the case during the study year. In most instances the two are probably the same.

should be remembered that, whereas the fatal cases include all cases dying during the year, the cases alive at the end of the year do not include all the surviving cases. It is believed that almost all of the "cured" cases of cancer as well as an appreciable proportion of cases under observation only were not reported, since such cases were usually not on the active list of patients under treatment. If such cases were included, they would undoubtedly fall in the longer duration classes of table 10, thus increasing the contrast between the fatal and the surviving cases.

TABLE 10.—Percentage of cases of cancer which had been diagnosed for less than certain specified number of months classified by vital condition at the end of the year, Cook County, Ill., 1937

Duration in months since diagnosis	All cases <sup>1</sup>	Cases alive at end of year	Cases dying before end of year
Less than 6 months.....	48	37	63
Less than 12 months.....	72	65	81
Less than 18 months.....	80	75	89
Less than 24 months.....	86	81	92
Less than 30 months.....	89	85	94
Less than 36 months.....	91	88	95
Less than 42 months.....	93	91	96
Less than 48 months.....	94	92	97
Less than 54 months.....	95	94	97
Less than 60 months.....	96	95	98

<sup>1</sup> Includes cases of unknown vital condition.

The data in tables 9 and 10 would seem to indicate clearly that a considerable proportion of persons with cancer do not seek medical treatment until the disease is in its advanced stages. The only other explanation would be that the fatal cases are principally those with primary sites which cannot be successfully treated as a rule, while the surviving cases indicate those most successfully treated, such as cancer of the skin for example.

As pointed out previously the data in table 7 show that the primary sites which are the most difficult to treat successfully do occur frequently among the dead cases. However, the cases classed as alive in that table include all cases alive at any time during the year and hence include all cases who died before the end of the year. Moreover, the primary site for the dead cases was taken from the death certificate and not from the case report.

In table 11, the percentage distribution by primary site is shown for cases alive at the end of the year and cases that died sometime during the year. The higher proportion among the cases that died of primary sites located in the digestive tract and respiratory system as contrasted with the higher proportion of cancer of the buccal cavity, breast, and skin among the surviving cases is clearly evident. One-half of the fatal cases died from cancer of the digestive or respiratory systems while only one-fourth of the surviving cases had primary

sites in the same organs. It is unquestionably true that the fatal cases included a larger proportion of types of malignant neoplasms which are most difficult to treat successfully.

TABLE 11.—Percentage distribution by primary site of cases alive at the end of the year and cases dying before the end of the year, Cook County, Ill., 1937

Primary site	Cases alive at end of year	Cases dying before end of year	Primary site	Cases alive at end of year	Cases dying before end of year
Buccal cavity, pharynx.....	8.6	5.1	Respiratory system—Con.		
Lip.....	3.5	.8	Lungs, pleura.....	1.4	6.1
Tongue.....	1.7	1.7	Others.....	.5	.6
Mouth.....	.6	.2	Genito-urinary system.....	27.4	24.7
Jaw.....	.9	.6	Uterus.....	15.3	9.2
Pharynx.....	.2	.6	Kidneys.....	1.1	1.9
Others.....	1.7	1.2	Bladder.....	3.8	4.4
Digestive tract.....	20.1	42.9	Prostate.....	3.3	5.2
Esophagus.....	1.0	3.4	Others.....	3.9	4.0
Stomach, duodenum.....	5.9	16.0	Breast.....	18.9	8.6
Intestines.....	4.9	10.3	Skin.....	13.1	2.1
Rectum, anus.....	6.5	6.5	Brain.....	.9	1.1
Liver, biliary passage.....	1.0	4.0	Bones (except jaw).....	1.8	1.6
Pancreas.....	.6	2.2	Others.....	5.4	5.4
Mesentery, peritoneum.....	.2	.5	Total.....	100.0	100.0
Respiratory system.....	3.9	8.5			
Larynx.....	1.9	1.8			

Nevertheless, this fact alone does not entirely account for the difference in duration since diagnosis of the living and dead cases shown in table 9. This conclusion seems apparent from the data in table 12, where the duration since diagnosis of surviving and of fatal cases of cancer is presented for five important broad groups of sites. Even when the comparison is restricted to the same sites, it is evident that the surviving cases had been under medical care for a greater length of time than the fatal cases. Persons with cancer of the breast were the only exceptions to this; for these cases there was almost no difference in the distribution by duration since diagnosis of the living and the dead cases.

TABLE 12.—Percentage of cases of cancer which had been diagnosed for less than certain specified number of months, classified by primary site and vital condition at the end of the year, Cook County, Ill., 1937

Duration in months since diagnosis	Buccal cavity		Digestive tract		Respiratory system		Genito-urinary system		Breast	
	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead
Less than 6 months.....	33	43	49	73	47	73	34	57	31	41
Less than 12 months.....	59	73	78	88	73	89	62	78	57	57
Less than 18 months.....	71	83	85	94	80	96	72	87	67	67
Less than 24 months.....	79	86	91	96	85	97	80	90	74	75
Less than 30 months.....	82	90	93	97	90	98	84	94	79	80
Less than 36 months.....	86	94	95	98	93	99	88	95	82	83
Less than 42 months.....	89	96	96	99	95	99	90	96	86	85
Less than 48 months.....	92	97	96	99	96	99	92	97	89	88
Less than 54 months.....	92	98	97	99	96	99	94	97	91	89
Less than 60 months.....	93	99	97	99	96	99	95	98	92	91

The cases with the shortest duration since diagnosis were those with the primary site in the digestive tract or respiratory system. About three-fourths of such cases who were still alive at the end of the year were diagnosed sometime during the year, but nearly 90 percent of those who died had been diagnosed within the past 12 months. Moreover, 73 percent of those who died with cancer of the digestive tract or respiratory system had been diagnosed less than 6 months before. The conclusion seems inescapable that a large proportion of persons with cancer of these parts of the body either do not seek medical care or, if medical care is sought, are not correctly diagnosed until the disease is too far advanced for successful treatment.

The same comment applies almost equally well to persons with cancer of the buccal cavity or genito-urinary system. Only 57 percent of fatal cases of buccal cancer and 43 percent of fatal cases of genito-urinary cancer had been under treatment for more than 6 months at the time of death. However, of the surviving cases two-thirds had been diagnosed for at least 6 months.

In this connection it would be interesting to estimate the average number of years a person with cancer could expect to live, but the data at hand do not lend themselves to such computations because they contain a disproportionate number of cases with a short duration. As previously pointed out, it is believed that "cured" cases were incompletely reported because they were not being treated during the study year. This fact should be borne in mind when interpreting the data for living cases in tables 9 to 12.

A measure of the severity of a disease frequently used in studies of communicable diseases is the case fatality rate, or the percent of the cases which fail to survive. Owing to the fact that cancer is a chronic rather than an acute disease, it is not possible to compute a rate of this nature which will have the same simple meaning. It is possible, however, to use an analogous percentage, namely, the proportion of cases diagnosed during the year who are dead by the end of the year (table 13).

TABLE 13.—Number and percentage of resident cases of cancer first seen in 1937, by sex, color, and vital condition at the end of 1937

Vital condition	Percentage				Number			
	White		Colored		White		Colored	
	Male	Female	Male	Female	Male	Female	Male	Female
Alive.....	47.4	57.5	29.3	49.0	1,656	2,308	39	121
Unknown.....	14.4	16.1	20.3	21.1	503	645	27	52
Dead.....	38.2	26.4	50.4	29.9	1,336	1,063	67	74
<b>Total.....</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>3,495</b>	<b>4,016</b>	<b>133</b>	<b>247</b>

One-third of the resident cases first seen in 1937 died during the same year. In other words, these cases lived only from 3 to 4 months after diagnosis, indicating that medical care was not sought until the disease was well advanced. Large differences were reported for the two sexes and for white and colored persons. A larger proportion of males than of females died in the same year that diagnosis was made; the same was true for the colored when compared with the white

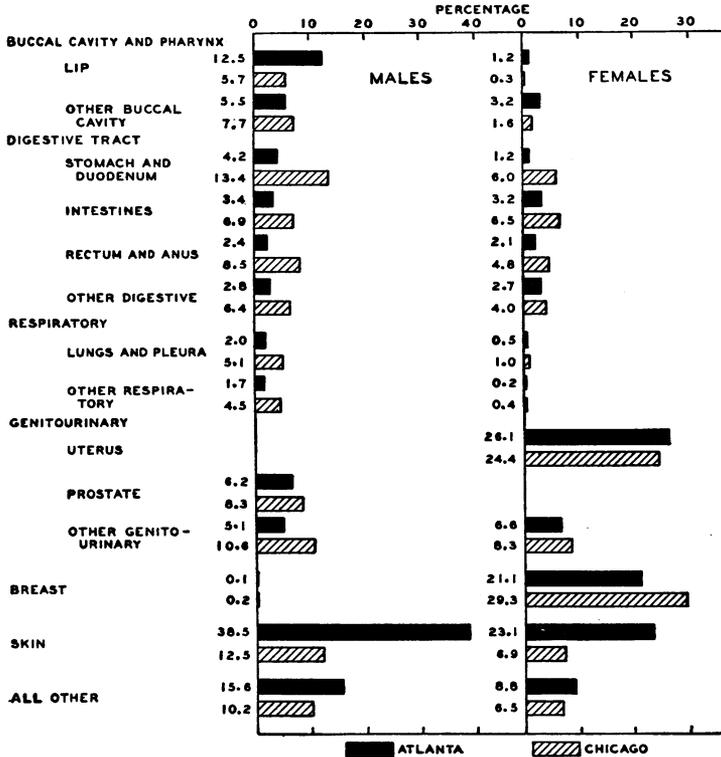


FIGURE 5.—Percentage of reported cases of cancer by primary site and sex for white persons, Atlanta, Ga., and Chicago, Ill., 1937.

cases, especially for males. One-half of the number of colored males diagnosed during 1937 died during that year.

One of the purposes of this series of surveys is to discover what difference, if any, exists in the frequency of various primary sites reported in different parts of the country. Since the data for a southern city, Atlanta, Ga., have already been published it is possible to compare at this time the distribution of cases classed by primary site in a northern city, Chicago (Cook County), and a southern city, Atlanta.

There are distinct differences in the distribution of cases by primary site in Chicago and Atlanta. The most apparent of these is the

relative frequency of malignant lesions of the skin and digestive tract. In Atlanta, 38.5 percent of all cases among white males were reported to be cancer of the skin while only 12.5 percent of all cases in Chicago were so classified. On the other hand, cancer of the digestive tract, which accounted for 12.8 percent of all cases in Atlanta, occurred in 35.2 percent of the cases in Chicago. Thus the relative importance of cancer of the skin and cancer of the digestive tract was almost exactly reversed in the two cities (fig. 5).

The difference in the relative frequency of various sites followed the same general pattern for white females as for white males, especially with reference to cancer of the skin and cancer of the digestive tract. However, only a slight difference was reported in the relative importance of cancer of the uterus and breast, the two most common sites in women.

Some caution should be used in interpreting the data in table 14, since they represent a percentage distribution of the cases and not case rates. The figures in this table could be converted into case rates of illness by multiplying by the rate for all forms of cancer. Such rates have not been computed because of the uncertainty attached to estimates of population. Approximate estimates indicate that the

TABLE 14.—Percentage of reported cases of cancer by primary site and sex for the white population, Atlanta, Ga., and Chicago, Ill., 1937

Primary site	White male		White female	
	Atlanta	Chicago	Atlanta	Chicago
Buccal cavity, pharynx.....	18.0	13.4	4.4	1.9
Lip.....	12.5	5.7	1.2	.3
Tongue.....	1.5	2.7	.5	.4
Mouth.....	1.1	.8		.1
Jaw.....	1.0	1.1	1.0	.4
Pharynx.....	.3	.6	.1	.1
Others.....	1.6	2.5	1.2	.6
Digestive tract.....	12.8	35.2	9.2	21.3
Esophagus.....	.6	3.0	.7	.4
Stomach, duodenum.....	4.2	13.4	1.2	6.0
Intestines.....	3.4	6.9	3.2	6.5
Rectum, anus.....	2.4	8.5	2.1	4.8
Liver, biliary passage.....	.7	1.6	1.3	2.4
Pancreas.....	1.1	1.4	.6	.9
Mesentery, peritoneum.....	.4	.4	.1	.3
Respiratory system.....	3.7	9.6	.7	1.4
Larynx.....	1.2	3.5	.2	.2
Lungs, pleura.....	2.0	6.1	.5	1.0
Others.....	.5	1.0	.0	.2
Genito-urinary system.....	11.3	18.9	32.7	32.7
Uterus.....			26.1	24.4
Kidneys.....	.7	1.9	.9	.8
Bladder.....	2.5	6.5	1.6	1.9
Prostate.....	6.2	8.3		
Others.....	1.9	2.2	4.1	5.6
Breast.....	.1	.2	21.1	29.3
Skin.....	38.5	12.5	23.1	6.9
Brain.....	3.2	1.4	1.8	.7
Bones (except jaw).....	1.4	2.3	1.1	1.1
Others.....	11.0	6.5	5.9	4.7
Total.....	100.0	100.0	100.0	100.0

case rates of illness do not differ greatly in the two areas, although that for Atlanta is probably slightly greater. If this is true the data in table 14 present a fair representation of the relative importance of the various sites in Atlanta and Chicago.

#### SUMMARY

The number of cases of cancer under medical care in Cook County, Ill., during 1937 was 14,160, of which 2,490 were nonresident and 11,670 were residents of the county. During the year 5,480 deaths attributed to cancer among residents of the county were registered with the State Health Department.

The ratio of cases to deaths was 2.6 for both sexes, 2.3 for males, and 2.9 for females. Less than twice as many cases as deaths were reported for colored males, a fact which indicates that treatment is not generally received until the disease is too far advanced for successful therapy.

Although cancer is primarily a disease of late adult life, cases occur at all ages. About 60 percent of the females and 50 percent of the males with cancer were in the main productive years of life, 30 to 60 years of age.

The stomach was the most frequent primary site among males. As a group, the digestive tract included more than one-third of the reported sites, while the genito-urinary system included another one-fifth; the two combined accounted for more than one-half of the total number of cases.

There was a marked sex difference in the distribution of primary sites. Fifty-six percent of the females had cancer of the breast or uterus.

Cancer of the genito-urinary system was proportionately more common among the colored cases while skin cancer was more common among the whites.

The location of the primary site of cancer varies considerably with the age of the patient. The brain and skeletal system are especially likely to be attacked by cancer at an early age; 57 percent of the brain cases and 48 percent of the bone cases were less than 45 years of age, whereas the corresponding percentage for all cases was only 20. On the other hand, nearly two out of every three cases of cancer of the pancreas occurred among persons 65 or more years of age. Other tissues or organs frequently attacked during this age period were the tongue, bladder, skin, and digestive system.

Nearly one-half of the patients had been under medical care less than 6 months since diagnosis and about three-fourths of the cases were of less than 1 year's duration. More than 80 percent of the cases who died during the year had been receiving treatment for

less than 1 year; 65 percent of the surviving cases had been under treatment for less than a year since diagnosis.

The duration since diagnosis varied widely for cases with different primary sites. About 90 percent of the cases that died during the year with cancer of the digestive tract or respiratory system had been diagnosed less than 12 months before death. The corresponding percentages for cases with primary sites in the buccal cavity, genitourinary system, and breast were 73, 78, and 57, respectively.

Slightly more than one-third of all cases under treatment died before the end of the year.

Several distinct differences appear when the distribution of primary sites in Cook County is compared with similar data for Atlanta, Ga. The most apparent of these is the relative frequency of malignant lesions of the skin and digestive tract. In Atlanta, 38.5 percent of all cases among white males had cancer of the skin while only 12.5 percent of all cases in Cook County were so classified. On the other hand, cancer of the digestive tract, which accounted for 12.8 percent of all cases in Atlanta, occurred in 35.2 percent of the cases in Cook County.

REFERENCE

- (1) Mountin, Joseph W., Dorn, Harold F., and Boone, Bert R.: The incidence of cancer in Atlanta, Ga., and surrounding counties. Pub. Health Rep., 54: 1255-1273 (1939).

Appendix

TABLE 1.—Number of cases of cancer reported, and number with a microscopically confirmed diagnosis, by primary site, and whether or not reported by a hospital, Cook County, Ill., 1937

Primary site	Reported by a hospital		Reported only by physicians		All reports	
	Total	Number with microscopic diagnosis	Total	Number with microscopic diagnosis	Total	Number with microscopic diagnosis
Buccal cavity, pharynx.....	717	615	331	193	1,048	808
Lip.....	270	226	125	51	395	277
Tongue.....	146	126	77	50	223	176
Mouth.....	42	36	23	18	65	54
Jaw.....	71	61	36	29	107	90
Pharynx.....	32	30	11	4	43	34
Others.....	156	136	59	41	215	177
Digestive tract.....	2,849	1,759	1,022	449	3,871	2,208
Esophagus.....	187	99	51	19	238	118
Stomach, duodenum.....	979	483	350	90	1,329	573
Intestines.....	668	437	251	138	919	575
Rectum, anus.....	682	548	226	141	908	689
Liver, biliary passage.....	171	93	99	37	270	130
Pancreas.....	126	66	32	14	158	80
Mesentery, peritoneum.....	36	33	13	10	49	43
Respiratory system.....	590	407	157	87	747	494
Larynx.....	194	173	57	44	251	217
Lungs, pleura.....	334	179	82	26	416	205
Others.....	62	55	18	17	80	72

TABLE 1.—Number of cases of cancer reported, and number with a microscopically confirmed diagnosis, by primary site, and whether or not reported by a hospital, Cook County, Ill., 1937—Continued

Primary site	Reported by a hospital		Reported only by physicians		All reports	
	Total	Number with microscopical diagnosis	Total	Number with microscopical diagnosis	Total	Number with microscopical diagnosis
Genito-urinary system.....	2,852	2,258	990	697	3,842	2,955
Uterus.....	1,410	1,146	532	398	1,942	1,544
Kidneys.....	149	114	42	25	191	139
Prostate.....	431	297	146	66	577	363
Bladder.....	462	351	113	82	575	433
Others.....	400	350	157	126	557	476
Breast.....	1,359	1,183	802	652	2,161	1,835
Skin.....	731	468	595	273	1,326	741
Brain.....	117	50	24	17	141	67
Bones (except jaw).....	174	127	65	43	239	170
Others.....	570	459	215	126	785	585
Total.....	9,959	7,326	4,201	2,537	14,160	9,863

TABLE 2.—Number of cases of cancer by primary site, sex, and color, Cook County, Ill., 1937

Primary site	Total		White		Colored	
	Male	Female	Male	Female	Male	Female
Buccal cavity, pharynx.....	905	142	866	122	23	11
Lip.....	373	22	366	22	1	3
Tongue.....	191	32	176	29	11	1
Mouth.....	54	10	52	9	4	1
Jaw.....	78	29	72	28	4	1
Pharynx.....	41	2	41	2	7	7
Others.....	168	47	159	37	7	7
Digestive tract.....	2,374	1,490	2,271	1,429	86	43
Esophagus.....	209	28	197	28	11	15
Stomach, duodenum.....	903	424	862	405	37	12
Intestines.....	462	455	446	436	14	12
Rectum, anus.....	568	338	546	321	15	4
Liver, biliary passage.....	105	165	101	159	3	4
Pancreas.....	99	59	92	59	5	1
Mesentery, peritoneum.....	28	21	27	21	1	1
Respiratory system.....	642	105	621	95	14	7
Larynx.....	236	15	226	14	6	1
Lungs, pleura.....	339	77	333	69	4	5
Others.....	67	13	62	12	4	1
Genito-urinary system.....	1,309	2,533	1,217	2,190	58	225
Uterus.....		1,942		1,639		202
Kidneys.....	135	56	124	52	3	2
Prostate.....	577		533		32	8
Bladder.....	437	138	416	127	8	13
Others.....	160	397	144	372	15	13
Breast.....	14	2,147	13	1,967		86
Skin.....	841	482	809	464	8	5
Brain.....	95	46	91	45	3	1
Bones (except jaw).....	158	81	146	76	7	2
Others.....	445	339	416	313	17	12
Total.....	6,783	7,365	6,450	6,706	216	392

TABLE 3.—Number of recorded deaths from cancer by primary site, sex, and color, Cook County, Ill., 1937

Primary site	Total		White		Colored	
	Male	Female	Male	Female	Male	Female
Buccal cavity, pharynx.....	189	26	179	22	9	4
Lip.....	18	1	18	1	.....	.....
Tongue.....	52	4	49	3	2	1
Mouth.....	17	2	16	1	1	1
Jaw.....	26	8	25	7	1	1
Pharynx.....	37	5	37	5	.....	.....
Others.....	39	6	34	5	5	1
Digestive tract.....	1,615	1,177	1,540	1,119	71	55
Esophagus.....	164	35	154	35	10	.....
Stomach, duodenum.....	672	374	644	358	26	15
Intestines.....	292	343	278	330	13	13
Rectum, anus.....	219	123	211	110	8	13
Liver, biliary passage.....	143	207	138	197	5	8
Pancreas.....	114	80	105	75	8	5
Mesentery, peritoneum.....	11	15	10	14	1	1
Respiratory system.....	361	82	348	77	11	5
Larynx.....	75	.....	74	.....	.....	.....
Lungs, pleura.....	216	72	207	67	9	5
Others.....	70	10	67	10	2	.....
Genito-urinary system.....	524	828	499	755	22	69
Uterus.....	.....	572	.....	507	.....	61
Kidneys.....	64	30	63	29	1	1
Bladder.....	180	68	173	66	5	2
Prostate.....	249	.....	234	.....	15	.....
Others.....	31	158	29	153	1	5
Breast.....	8	492	7	455	1	36
Skin.....	36	26	34	26	2	.....
Brain.....	14	11	13	10	1	1
Bones (except jaw).....	51	27	47	22	4	5
Others.....	154	115	146	110	8	5
Total.....	2,952	2,784	2,813	2,596	129	180

TABLE 4.—Distribution of cases of cancer by age and primary site, Cook County, Ill., 1937

Primary site	Under 25	25-34	35-44	45-54	55-64	65-74	75 and over	Un-known	Total
Buccal cavity, pharynx.....	12	24	144	247	269	222	92	38	1,048
Lip.....	.....	5	72	111	95	71	25	16	395
Tongue.....	1	2	21	53	60	55	24	9	225
Mouth.....	2	2	8	16	14	13	7	2	64
Jaw.....	5	5	11	13	32	25	13	2	106
Pharynx.....	.....	1	5	5	14	17	6	3	51
Others.....	4	9	27	49	54	41	17	6	207
Digestive tract.....	24	89	390	875	1,116	938	358	81	3,871
Esophagus.....	.....	3	15	47	87	57	25	3	237
Stomach, duodenum.....	3	18	115	300	406	327	136	26	1,331
Intestines.....	9	28	104	213	235	229	87	13	918
Rectum, anus.....	6	32	113	207	235	222	63	30	908
Liver, biliary passage.....	2	1	21	54	90	65	32	5	270
Pancreas.....	1	4	11	37	56	31	14	4	158
Mesentery, peritoneum.....	3	3	11	17	7	7	1	.....	49
Respiratory system.....	13	20	103	253	223	90	25	20	747
Larynx.....	2	4	27	87	72	41	10	8	251
Lungs, pleura.....	8	13	51	138	136	49	13	8	416
Others.....	3	3	25	28	15	.....	2	4	80

TABLE 4.—Distribution of cases of cancer by age and primary site, Cook County, Ill., 1937—Continued

Primary site	Under 24	25-34	35-44	45-54	55-64	65-74	75 and over	Un-known	Total
Genito-urinary system.....	22	189	679	989	922	743	246	53	3,843
Uterus.....	3	129	440	616	448	229	50	27	1,942
Kidneys.....	11	6	29	61	57	23	3	1	191
Bladder.....	1	9	60	141	150	160	49	5	576
Prostate.....	.....	3	7	42	148	248	120	9	577
Others.....	7	42	143	129	119	83	24	11	558
Breast.....	12	99	434	649	527	305	78	57	2,161
Skin.....	25	29	145	271	333	268	144	111	1,326
Brain.....	30	13	37	32	25	3	.....	1	141
Bones (except jaw).....	48	19	48	47	48	20	6	3	239
Others.....	39	54	140	183	166	128	45	29	784
Total.....	225	536	2,120	3,546	3,629	2,717	994	393	14,160

TABLE 5.—Number of reported cases of cancer alive at the end of the study year, by the number of months since first diagnosis and primary site, Cook County, Ill., 1937

Primary site	Under 6	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59	60 and over	Un-known	Total
Buccal cavity, pharynx.....	221	182	82	49	23	25	23	16	4	7	40	1	679
Lip.....	91	74	39	21	8	9	9	5	2	2	13	1	274
Tongue.....	44	37	14	11	4	3	3	2	1	2	15	.....	136
Mouth.....	18	11	2	6	.....	2	1	1	.....	.....	6	.....	47
Jaw.....	30	16	7	4	2	6	1	2	.....	.....	3	.....	71
Pharynx.....	7	2	2	.....	1	1	1	.....	.....	.....	1	.....	15
Others.....	31	42	18	7	8	4	8	6	1	3	8	.....	136
Digestive tract.....	774	453	125	83	31	33	13	12	6	7	45	1	1,583
Esophagus.....	49	15	3	2	3	1	.....	1	.....	.....	2	.....	76
Stomach, duodenum.....	264	136	25	18	5	4	3	.....	3	2	4	.....	464
Intestines.....	162	122	39	17	6	13	3	2	1	2	16	1	394
Rectum, anus.....	207	146	50	39	15	13	7	9	2	3	19	.....	510
Liver, biliary passage.....	50	18	2	4	.....	1	.....	.....	.....	.....	3	.....	78
Pancreas.....	29	12	4	2	1	1	.....	.....	.....	.....	1	.....	50
Mesentery, peritoneum.....	13	4	2	1	1	.....	.....	.....	.....	.....	.....	.....	21
Respiratory system.....	143	80	23	16	14	10	4	5	1	.....	11	.....	307
Larynx.....	59	50	7	9	11	5	2	1	.....	.....	8	.....	152
Lungs, pleura.....	69	23	11	7	1	1	.....	1	.....	.....	2	.....	115
Others.....	15	7	5	.....	2	4	2	3	1	.....	1	.....	40
Genito-urinary system.....	740	601	221	172	81	78	54	44	35	23	107	3	2,159
Uterus.....	376	326	131	108	53	53	36	23	21	13	65	3	1,208
Kidneys.....	36	26	12	2	1	5	.....	.....	.....	.....	3	.....	85
Bladder.....	105	86	30	19	12	9	4	6	7	4	17	.....	299
Prostrate.....	116	76	26	22	6	4	3	5	1	.....	4	.....	263
Others.....	107	87	22	21	9	7	11	10	6	6	18	.....	304
Breast.....	464	385	148	114	75	40	59	41	29	24	112	4	1,495
Skin.....	340	293	112	66	47	27	24	16	14	12	79	1	1,031
Brain.....	32	18	9	5	1	.....	.....	.....	.....	.....	3	.....	68
Bones (except jaw).....	48	45	11	9	7	5	3	2	2	1	9	.....	142
Others.....	159	129	40	32	14	15	8	6	4	5	17	.....	429
Total.....	2,921	2,186	771	546	293	233	188	142	95	79	429	10	7,893

TABLE 6.—Number of reported cases of cancer dying during the study year, by the number of months since first diagnosis and primary site, Cook County, Ill., 1937

Primary site	Un- der 6	6-11	12-17	18-23	24-29	30-35	36-41	42-47	48-53	54-59	60 and over	Un- known	Total
Buccal cavity, pharynx . . .	93	65	21	8	9	8	4	3	2	1	2	1	217
Lip . . . . .	12	7	1	3	4	3	1	2	1		1		35
Tongue . . . . .	30	27	6	4	2	1	1	1					72
Mouth . . . . .	5	1	1	1			1						9
Jaw . . . . .	12	6	5			1				1			26
Pharynx . . . . .	12	8	2			2			1				25
Others . . . . .	22	16	6		2	1	1				1	1	50
Digestive tract . . . . .	1,358	284	106	35	18	18	10	4	1	3	17	5	1,859
Esophagus . . . . .	110	23	8	2	1	1		1			1	1	148
Stomach, duodenum . . . . .	520	109	29	10	6	6	2			2	6	1	691
Intestines . . . . .	329	53	35	5	4	4	3	2	1		6	2	444
Rectum, anus . . . . .	171	47	28	15	6	6	4			1	3	1	282
Liver, biliary passage . . . . .	138	30	3		1	1	1				1		175
Pancreas . . . . .	73	18	2	3				1					97
Others . . . . .	17	4	1										22
Respiratory system . . . . .	268	61	25	5	4	2					3	1	369
Larynx . . . . .	43	22	12	1		1							79
Lungs, pleura . . . . .	209	34	10	4	3						3	1	264
Others . . . . .	16	5	3		1	1							26
Genito-urinary system . . . . .	606	226	95	39	37	12	13	8	5	3	23	2	1,069
Uterus . . . . .	188	96	49	24	14	5	8	2	4	1	10		401
Kidneys . . . . .	53	15	5	3	3		1				2		82
Bladder . . . . .	130	33	9	1	4	2	2	3	1	1	3		189
Prostate . . . . .	139	42	14	7	11	3	1			1	3	1	223
Others . . . . .	96	40	18	4	5	2	1	2			5	1	174
Breast . . . . .	151	62	37	28	19	13	8	9	6	5	32	3	373
Skin . . . . .	39	23	7	9	3			3	3	1	4		92
Brain . . . . .	35	7	2		1						1	1	47
Bones (except jaw) . . . . .	33	17	11	1	2		1		1		2	2	70
Others . . . . .	137	43	25	9	5	2	2		2	1	4	3	233
Total . . . . .	2,720	788	329	134	98	55	38	27	20	14	88	18	4,329

## DISABLING MORBIDITY AMONG INDUSTRIAL WORKERS, FINAL QUARTER OF 1939 AND THE ENTIRE YEAR<sup>1</sup>

By WILLIAM M. GAFAFER, *Senior Statistician, United States Public Health Service*

The basic data upon which this paper depends are derived from periodic reports on sickness and nonindustrial injuries causing disability lasting more than 1 week among approximately 170,000 male members of industrial sick benefit organizations. These organizations comprise mutual sick benefit associations, group insurance plans, and company relief departments. The companies are located in Pennsylvania, Illinois, Massachusetts, Connecticut, New York, Ohio, Maine, South Dakota, New Jersey, and Canada.

*The year 1939.*—According to table 1 the frequency for 1939 of all sickness and nonindustrial injuries causing disability for 8 consecutive calendar days or longer was 88.8 per 1,000 men, a slight increase when compared with the corresponding frequency (82.2) for 1938. The cause group principally responsible for this increase

<sup>1</sup> From the Division of Industrial Hygiene, National Institute of Health. For the third quarter of 1939 see PUBLIC HEALTH REPORTS, 55: 1-3 (January 5, 1940).

appears to be influenza and grippe, with a frequency of 16.5 in 1939 and 9.9 in 1938, the former rate reflecting primarily the first quarter rate of 40.0.

**TABLE 1.**—*Frequency of cases of sickness and nonindustrial injuries lasting 8 consecutive calendar days or longer among male employees in various industries, by cause, the fourth quarter of 1939 compared with the fourth quarter of 1938, and the full year of 1939 compared with the full years 1934-38, inclusive*<sup>1</sup>

[Male morbidity experience of industrial companies which reported their cases to the United States Public Health Service]

Cause (numbers in parentheses are disease title numbers from the International List of Causes of Death, 1929)	Annual number of cases per 1,000 males				
	Fourth quarter		Full year		
	1939	1938	1939	1938	1934-38
Sickness and nonindustrial injuries <sup>2</sup> .....	77.2	81.4	88.8	82.2	87.9
Nonindustrial injuries (163-198, 201-214).....	10.2	10.6	10.2	11.0	11.5
Sickness <sup>2</sup> .....	67.0	70.8	78.6	71.2	76.4
Respiratory diseases.....	27.5	28.2	34.1	26.6	31.3
Influenza and grippe (11).....	10.3	10.8	16.5	9.9	14.1
Bronchitis, acute and chronic (106).....	4.6	5.1	4.2	4.3	4.2
Diseases of the pharynx and tonsils (115a).....	3.7	3.8	4.4	4.5	4.4
Pneumonia, all forms (107-109).....	3.0	2.9	3.0	2.3	2.8
Tuberculosis of the respiratory system (23).....	.5	.8	.7	.9	.9
Other respiratory diseases (104, 105, 110-114).....	5.4	4.8	5.3	4.7	4.9
Nonrespiratory diseases.....	37.9	40.7	42.5	42.5	42.7
Digestive diseases.....	10.9	13.4	13.3	13.4	13.4
Diseases of the stomach, except cancer (117, 118).....	3.2	4.2	3.5	4.1	3.8
Diarrhea and enteritis (120).....	1.0	1.1	1.2	1.0	1.2
Appendicitis (121).....	3.7	3.5	4.3	4.0	4.1
Hernia (122a).....	1.0	1.4	1.5	1.6	1.6
Other digestive diseases (115b, 116, 122b-129).....	2.0	3.2	2.8	2.7	2.7
Nondigestive diseases.....	27.0	27.3	29.2	29.1	29.3
Diseases of the heart and arteries, and nephritis (90-99, 102, 130-132).....	4.4	4.1	4.4	4.1	3.8
Other genitourinary diseases (133-138).....	2.0	2.1	2.3	2.3	2.4
Neuralgia, neuritis, sciatica (87a).....	2.3	2.2	2.2	2.1	2.1
Neurasthenia and the like (part of 87b).....	1.0	1.0	1.0	.9	1.0
Other diseases of the nervous system (78-85, part of 87b).....	1.0	1.1	1.0	1.2	1.2
Rheumatism, acute and chronic (56, 57).....	2.7	3.3	3.4	3.7	4.0
Diseases of the organs of locomotion, except diseases of the joints (156b).....	2.6	3.0	2.6	2.8	2.9
Diseases of the skin (151-153).....	2.5	2.5	2.7	3.0	2.9
Infectious and parasitic diseases (1-10, 12-22, 24-33, 36-44).....	1.5	1.4	2.1	2.1	2.5
All other diseases (45-55, 58-77, 88, 89, 100, 101, 103, 154-156a, 157, 162).....	7.0	6.6	7.5	6.9	6.5
Ill-defined and unknown causes (200).....	1.6	1.9	2.0	2.1	2.4
Average number of males covered in the record.....	192,211	167,894	177,333	167,915	161,193
Number of organizations.....	26	26	26	26	26

<sup>1</sup> In 1939 and 1938 the same organizations are included; the rates for the years 1934-38, however, are based on records from the same 26 organizations and some additional reporting organizations.

<sup>2</sup> Exclusive of disability from the venereal diseases and a few numerically unimportant causes of disability.

Of interest also is the increase of 30 percent shown by the annual frequency for pneumonia, all forms; however, when the rate for 1939 is compared with the corresponding frequency for 1934-38 the increase becomes very much reduced. The question arises as to the relative position of the pneumonia rate for 1939 among the annual rates recorded for previous years.

*Pneumonia, 1930-39.*—The pertinent rates are given for the years 1930-39 in the following table. In addition each annual rate is shown in terms of the average rate for the entire period. It will be observed that the annual rate for 1939 (3.0) is the highest recorded for the decade, while the lowest rate (1.8) occurred in 1933. The 10 annual rates vary about a mean of 2.4, beginning with the relatively high rate of 2.6 in 1930, decreasing to 1.8 in 1933, gradually rising to 2.9 in 1937, dropping precipitously to 2.3 in 1938, and rising again to the maximum of 3.0.

Item	1930-39	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Pneumonia rate per 1,000.....	2.4	2.6	2.1	2.0	1.8	1.9	2.3	2.6	2.9	2.3	3.0
Ratio of rate to rate for 1930-39..	1.00	1.08	0.88	0.83	0.75	0.79	0.96	1.08	1.21	0.96	1.25

Of interest is the variation of the annual rates in terms of the average rate for the entire 10 years. It will be seen that the rate varies within a band determined by the 25-percent defect for 1933 and the 25-percent excess for 1939. The initial rate of the 10-year period shows an excess of 8 percent, an excess which is again reached in 1936 after a decrease and a rise. Thereafter the rate rises to an excess of 21 percent for the year 1937. The following year, 1938, which was an unusually favorable year with respect to all causes, shows a defect of 4 percent which in 1939 becomes an excess of 25 percent.

*The years 1934-38.*—A comparison of the rates for 1939 with the corresponding ones for 1934-38, which are shown in table 1, reveals only a slight difference for all sickness and nonindustrial injuries. However, the rates for influenza and grippe, and diseases of the heart and arteries, including nephritis, are unfavorable.

*Final quarter of 1939.*—An examination of the fourth quarter frequencies shows favorable rates for 1939 as compared with 1938 for diseases of the stomach except cancer, hernia, and rheumatism, acute and chronic. The rheumatic group, on the other hand, which is generally defined in these reports as including neuralgia, neuritis, and sciatica, rheumatism, acute and chronic, and diseases of the organs of locomotion, except diseases of the joints, shows only a small decrease in frequency, namely, from 8.5 to 7.6.

## THE NEED FOR INTENSIVE EDUCATIONAL CAMPAIGNS IN CANCER CONTROL

For some years educational campaigns designed to enlighten the people regarding cancer have been conducted by the American Society for the Control of Cancer, the United States Public Health Service, the State health departments, State cancer commissions, and the American Medical Association. The fundamental purpose of such informational activity has been to encourage early diagnosis and treatment, to supplant misconceptions with helpful knowledge, and to overcome resort to quackery. In view of these efforts, it is of interest to those so engaged, and of especial value in the orientation of future efforts, to have a measure of the success of educational campaigns and to know where they have failed. We have an index of this measure in the recent survey made by the American Institute of Public Opinion, in cooperation with the American Society for the Control of Cancer.

The poll was made, by means of questionnaires, of men and women in all parts of the United States. Within the limits of the population surveyed, which may have certain selective features but is assumed to be fairly representative, the lack of important, accurate, helpful information regarding cancer, as well as the amount of misinformation, is somewhat astounding. The following are the questions and the distributed percentages of the answers.

### 1. *Do you think that cancer is curable?*

	Percent
Believed curable if treated in time.....	56
Believed incurable.....	27
Don't know.....	17

Since only 49 percent thought cancer to be curable in the survey made a year ago, the present figures indicate substantial improvement with respect to general knowledge on this point. Applying the difference in the percentages to the entire adult population, it is indicated that 5,500,000 more men and women have been reached with this important knowledge that may result in the saving of life.

### 2. *Do you think that cancer is contagious?*

	Percent
Believe cancer not contagious.....	57
Believe it to be contagious.....	15
Don't know.....	28

As 20 percent believed cancer to be contagious in the poll made one year ago, some improvement has been made in enlightenment on this point.

### 3. *What do you think causes cancer?*

About one-half of the persons polled had some theory, while the other half had no opinion. The most frequently named causes, in the

order mentioned, were bruises, injuries, constant irritation of body tissues, sores, and tumors. Other replies revealed a mixture of sound information and error.

The next question is one in which the results of the poll especially indicate a field for greater educational effort.

4. *Do you happen to know any of the symptoms of cancer?* The replies were:

	Percent
Yes.....	38
No.....	62

These figures would indicate that only a little more than one-third of the people in the United States have yet been educated to recognize the symptoms of cancer.

5. *Do you think that there is anything shameful in having cancer?*

	Percent
No.....	98
Yes.....	2

It is an encouraging and optimistic note to know that people no longer consider it a disgrace to be afflicted with cancer, and are thus less likely to conceal it and more likely to secure early treatment.

The replies to the next question were not only of interest with respect to general knowledge regarding cancer, but they very forcibly reveal the effect, on the public mind, of the open attack on the venereal diseases. A year ago 76 percent of the persons polled considered cancer the greatest public health problem, whereas in the present survey syphilis took the lead. The question, however, may be open to some criticism regarding interpretation. It was

6. *In your opinion which of the following-named diseases is the most serious public health problem?* The replies were:

	Percent
Syphilis.....	46
Cancer.....	29
Tuberculosis.....	16
Infantile paralysis.....	9

Although the results of the poll show encouraging progress in public enlightenment regarding cancer, they also reveal that widespread misconceptions still prevail and that much work still remains to be done.

With regard to curability of cancer if detected in time, there is yet much to be done in the diffusion of helpful knowledge. It would be interesting to learn how many people are aware that there are today only two known methods of treatment—surgery and radiation—and how many believe in the efficacy of salves and serums.

With regard to opinions on the causes of cancer, the survey reveals the prevalence of many misconceptions. The much publicized and absolutely erroneous idea that aluminum cooking utensils are respon-

sible still persists and is apparently difficult to eradicate. The same is true of some other alleged causes.

While research workers are actively engaged in solving the mystery that still surrounds the etiology of cancer, and attempting to devise specific measures for treatment and prevention—hopes that, in view of the multiple fields of intensive research, may in the future be realized—it is incumbent upon public health authorities and others concerned with public health education to disseminate useful, practical knowledge regarding the disease and to spread the gospel of hope.

Diagnostic service and treatment facilities are being provided in many clinics throughout the country. In 1939 the American College of Surgeons had records of at least 30,000 cancer patients who had remained cured for a 5-year period. In 1938 cancer caused nearly 150,000 deaths in the United States. It is estimated that ideal application of present knowledge of control would reduce the cancer mortality rate by 25 percent. Help for the other 115,000 fatal cases annually must depend upon the acquisition of new knowledge through research.

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## COURT DECISION ON PUBLIC HEALTH

*Guaranty to dealer that a food or drug is not adulterated or misbranded under a State's statutes.*—(Massachusetts Supreme Judicial Court; *Commonwealth v. Johnson Wholesale Perfume Co., Inc.*, 24 N.E.2d 8; decided December 1, 1939.) The defendant company sold to an inspector of the State department of public health a drug which was "adulterated or misbranded" within the meaning of a statute dealing with the adulteration and misbranding of food and drugs. The defendant sold the drug in the original unbroken package in which it had received the same. The statute provided that no dealer should be prosecuted, under sections of the statute dealing with adulteration or misbranding, for selling any article of food or drug in the original unbroken package in which it was received by him if he could establish a guaranty by the wholesaler, jobber, manufacturer, or other person residing in the United States, from whom he purchased the article, to the effect that the same was not adulterated or misbranded within the meaning of the State laws. The statute also provided that such guaranty, to afford protection, should contain the name and address of the person making the sale of the article to the dealer. A regulation of the State department of public health required that a guaranty given under the statutory provision should also, in order to protect the person receiving it, be signed by the party selling to the dealer.

The defendant company had a guaranty covering the drug sold to the health department inspector, which guaranty complied with the provisions of the statute but did not comply with the department's

regulation in that it was not signed by the guarantor. The question presented to the supreme court was whether the lack of the guarantor's signature deprived the defendant of the immunity from prosecution given by the statute. In deciding in the defendant's favor the court said that it thought that the language of the statute, viewed with the history of the statutes giving immunity to dealers, adequately indicated that the legislature intended to give the protection of the immunity statute to a dealer who had a guaranty of the kind described in the statute without requiring that the guaranty be signed. A concluding paragraph of the opinion read:

The statute in section 193 has specified fully the requirements of the legislature as to the character of a guaranty which shall afford immunity from prosecution to a dealer who has sold the articles mentioned in the statute and made a signed guaranty unnecessary. When a subject has been fully regulated by statute an administrative board cannot further regulate it by the adoption of a regulation which is repugnant to the statute. \* \* \*

### DEATHS DURING WEEK ENDED MARCH 23, 1940

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Mar. 23, 1940	Correspond- ing week, 1939
<b>Data from 88 large cities of the United States:</b>		
Total deaths.....	8,964	9,213
Average for 3 prior years.....	9,188	
Total deaths, first 12 weeks of year.....	113,972	114,003
Deaths under 1 year of age.....	403	545
Average for 3 prior years.....	567	
Deaths under 1 year of age, first 12 weeks of year.....	6,197	6,667
<b>Data from industrial insurance companies:</b>		
Policies in force.....	65,940,665	67,733,216
Number of death claims.....	12,988	17,880
Death claims per 1,000 policies in force, annual rate.....	10.3	13.7
Death claims per 1,000 policies, first 12 weeks of year, annual rate.....	10.7	11.3

# PREVALENCE OF DISEASE

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*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

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## UNITED STATES

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### REPORTS FROM STATES FOR WEEK ENDED APRIL 6, 1940

#### Summary

The incidence of each of the 9 diseases reported to the United States Public Health Service weekly by telegraph by the State health officers was below the median expectancy (1935-39) for the current week with the exception of poliomyelitis. All of these diseases except measles, poliomyelitis, and whooping cough showed a decrease from the preceding week, and all except poliomyelitis and scarlet fever were below the figures for the corresponding week last year.

The accumulated totals for the first 14 weeks of the current year, the period ending with the current week, are below the median expectancy for all of these diseases except influenza and poliomyelitis. As a further indication of favorable health conditions in the United States so far this year, the total number of deaths and infant mortality in 88 large cities, as reported to the Bureau of the Census, up to March 30, are below the figures for 1939. Neither in 1939 nor in the current year, however, are these figures as low as in 1938, a year which recorded the lowest mortality rate in the history of the country.

While the incidence of all of the nine important communicable diseases included in the following table is low, especially favorable conditions obtain with respect to diphtheria, measles, meningococcus meningitis, scarlet fever, smallpox, and typhoid fever. The accumulated total for smallpox is less than one-fourth, of measles less than one-half, and of meningococcus meningitis less than one-third of the median expectancy for the 5-year period 1935-39, while diphtheria is about 64 percent and typhoid fever about 65 percent of the median.

For the current week, 14 cases of endemic typhus fever were reported, 2 cases of encephalitis in South Carolina, 1 case of undulant fever in Maryland and 1 in Utah, and 3 cases of Rocky Mountain spotted fever in western States. California and Texas each reported 4 cases of poliomyelitis.

Telegraphic morbidity reports from State health officers for the week ended April 6, 1940, and comparison with corresponding week of 1939 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Med-ian, 1935-39	Week ended		Med-ian, 1935-39	Week ended		Med-ian, 1935-39	Week ended		Med-ian, 1935-39
	Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939	
<b>NEW ENG.</b>												
Maine	1	3	1		73	6	668	15	92	0	0	0
New Hampshire	1	0	0				41	3	29	0	0	0
Vermont	0	1	0				8	45	45	0	0	0
Massachusetts	0	2	3				472	949	736	1	0	1
Rhode Island	0	0	0				208	30	48	0	1	1
Connecticut	0	0	4	8	10	10	83	800	799	1	0	2
<b>MID. ATL.</b>												
New York	18	15	33	11	22	17	668	1,563	2,909	1	3	10
New Jersey	1	9	13	6	3	13	462	34	1,562	1	0	1
Pennsylvania	24	28	37				264	151	721	7	4	5
<b>E. NO. CEN.</b>												
Ohio	12	12	14	67		16	25	18	424	0	0	4
Indiana	6	16	13	16	60	60	50	23	137	5	0	5
Illinois	22	27	37	22	63	61	63	33	85	0	2	2
Michigan <sup>1</sup>	3	12	12	22	20	12	338	409	409	0	1	1
Wisconsin	1	1	2	175	533	49	469	657	657	1	4	2
<b>W. NO. CEN.</b>												
Minnesota	1	2	5	2	1	1	160	408	361	0	1	1
Iowa	2	10	8	4	202	6	135	231	194	0	0	1
Missouri	9	17	23	4	11	56	29	18	55	0	0	1
North Dakota	0	0	0	12	124	24	5	79	24	0	1	0
South Dakota <sup>1</sup>	0	0	0	5	43		3	179	2	0	0	0
Nebraska	5	1	1				13	173	127	0	0	1
Kansas	5	3	5	19	32	6	582	43	43	1	1	1
<b>SO. ATL.</b>												
Delaware	1	0	1				3	0	22	0	0	0
Maryland <sup>1</sup>	0	1	6	25	12	16	5	497	292	0	0	5
Dist. of Col.	1	5	5		3	1	2	167	72	0	0	2
Virginia	16	18	13	292	759		82	479	438	1	3	5
West Virginia <sup>1</sup>	9	8	8	171	528	120	7	21	30	1	1	3
North Carolina	17	15	18	33	34	34	163	810	342	0	2	4
South Carolina <sup>1</sup>	9	2	2	552	846	303	16	32	39	0	1	1
Georgia <sup>1</sup>	8	4	4	168	880	344	150	194	0	0	1	1
Florida	5	7	7	6		2	124	160	77	0	0	1
<b>E. SO. CEN.</b>												
Kentucky	4	7	8	13	243	20	146	19	448	1	0	6
Tennessee	1	5	5	140	440	141	84	83	82	1	3	5
Alabama <sup>1</sup>	5	10	10	172	978	648	113	160	169	1	2	7
Mississippi <sup>1,2</sup>	8	4	4							2	2	1
<b>W. SO. CEN.</b>												
Arkansas	3	2	6	134	400	82	10	47	47	2	1	1
Louisiana	6	11	9	45	19	19	34	151	67	0	0	1
Oklahoma	4	5	13	68	308	124	17	168	112	1	0	2
Texas <sup>1</sup>	24	30	42	882	2,285	792	890	301	423	6	0	2
<b>MOUNTAIN</b>												
Montana <sup>1</sup>	2	0	0		55	39	16	191	39	0	0	1
Idaho	1	0	0	2	15	4	35	123	15	0	0	0
Wyoming	1	1	0	1			43	110	46	0	0	0
Colorado <sup>1</sup>	12	17	5	34	20		31	298	166	0	0	1
New Mexico	0	5	3		18	14	50	24	54	0	0	0
Arizona	0	5	1	122	327	90	104	11	63	0	0	1
Utah <sup>1</sup>	0	0	0	4	102		468	102	33	0	0	0
<b>PACIFIC</b>												
Washington	1	0	2	2		1	1,014	643	262	2	1	1
Oregon <sup>1</sup>	13	2	1	22	130	81	582	54	64	0	0	1
California <sup>1</sup>	9	21	27	151	123	123	352	2,632	1,313	2	2	5
Total	271	341	444	3,412	9,740	3,981	9,381	13,447	13,447	39	37	139
14 weeks	5,213	6,907	8,149	152,441	123,286	198,246	86,260	181,278	181,278	559	719	1,828

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended April 6, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.

Division and State	Pollomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended		Median, 1935-39	Week ended		Median, 1935-39	Week ended		Median, 1935-39	Week ended		Median, 1935-39
	Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939	
<b>NEW ENG.</b>												
Maine.....	0	0	0	11	15	15	0	0	0	0	3	3
New Hampshire.....	0	0	0	0	7	9	0	0	0	0	0	0
Vermont.....	0	0	0	9	12	12	0	0	0	0	1	0
Massachusetts.....	0	0	0	185	182	274	0	0	0	0	2	2
Rhode Island.....	0	0	0	22	12	25	0	0	0	0	0	0
Connecticut.....	0	0	0	117	91	130	0	0	0	2	1	1
<b>MID. ATL.</b>												
New York.....	0	3	2	920	682	1,036	0	0	0	0	6	8
New Jersey.....	0	0	0	371	149	171	0	0	0	0	3	2
Pennsylvania.....	1	1	0	406	349	602	0	0	0	7	10	9
<b>E. NO. CEN.</b>												
Ohio.....	1	1	0	363	361	361	1	9	3	4	1	4
Indiana.....	0	0	0	206	191	204	2	15	9	2	0	0
Illinois.....	2	3	1	952	487	763	5	6	8	1	3	4
Michigan <sup>1</sup> .....	0	0	0	365	413	413	0	16	9	2	3	3
Wisconsin.....	1	0	0	81	241	351	1	4	4	1	1	1
<b>W. NO. CEN.</b>												
Minnesota.....	0	0	0	74	51	166	2	5	5	0	0	0
Iowa.....	0	0	0	35	115	221	11	40	40	2	1	1
Missouri.....	0	0	0	111	86	115	0	23	23	1	2	2
North Dakota.....	0	0	0	15	12	30	1	1	3	1	2	0
South Dakota <sup>1</sup> .....	0	0	0	17	18	18	2	5	6	1	1	0
Nebraska.....	0	0	0	13	34	42	3	11	11	0	0	0
Kansas.....	1	0	0	61	78	142	0	2	20	1	0	1
<b>SO. ATL.</b>												
Delaware.....	0	0	0	8	5	5	0	0	0	0	0	0
Maryland <sup>1</sup> .....	0	0	0	80	25	60	0	0	0	0	3	3
Dist. of Col.....	1	0	0	17	18	18	0	0	0	1	0	1
Virginia.....	1	0	0	71	49	38	0	0	0	4	4	3
West Virginia <sup>1</sup> .....	1	1	0	53	27	55	0	0	0	2	2	2
North Carolina.....	0	0	1	31	37	32	1	1	1	0	5	4
South Carolina <sup>1</sup> .....	0	5	0	6	2	5	2	1	0	0	3	1
Georgia <sup>1</sup> .....	0	1	0	10	5	7	0	0	0	3	1	1
Florida.....	1	1	0	9	7	7	0	0	0	1	5	4
<b>E. SO. CEN.</b>												
Kentucky.....	0	0	0	89	72	58	0	1	1	6	3	3
Tennessee.....	1	1	0	91	88	30	1	0	0	2	2	6
Alabama <sup>1</sup> .....	1	0	0	12	9	9	0	0	1	2	2	3
Mississippi <sup>1,2</sup> .....	0	2	1	6	6	6	0	1	0	2	1	1
<b>W. SO. CEN.</b>												
Arkansas.....	1	2	0	6	10	10	1	0	1	1	2	2
Louisiana.....	0	0	0	12	5	9	0	0	1	2	19	11
Oklahoma.....	0	0	0	16	22	22	2	24	3	7	0	1
Texas <sup>1</sup> .....	4	0	0	40	60	60	3	18	18	1	9	10
<b>MOUNTAIN</b>												
Montana <sup>1</sup> .....	0	0	0	22	12	16	0	0	0	1	1	1
Idaho.....	1	1	0	14	17	17	0	4	4	0	1	0
Wyoming.....	0	0	0	4	16	17	0	0	5	0	0	0
Colorado <sup>1</sup> .....	0	0	0	35	34	38	4	3	5	2	0	0
New Mexico.....	0	0	0	22	3	16	1	1	0	2	2	2
Arizona.....	0	1	0	7	11	23	0	3	1	0	4	1
Utah.....	0	0	0	14	30	47	1	0	0	0	0	0
<b>PACIFIC</b>												
Washington.....	0	0	0	57	37	37	3	4	15	2	0	0
Oregon <sup>1</sup> .....	0	1	0	20	30	53	0	6	6	0	4	3
California <sup>1</sup> .....	4	0	1	123	182	208	0	9	9	4	1	2
Total.....	22	24	17	5,188	4,355	6,992	47	213	261	78	115	128
14 weeks.....	375	211	293	66,711	73,326	95,374	1,001	5,115	4,333	1,060	1,642	1,643

See footnotes at end of table.

*Telegraphic morbidity reports from State health officers for the week ended April 6, 1940, and comparison with corresponding week of 1939 and 5-year median—Con.*

Division and State	Whooping cough		Division and State	Whooping cough	
	Week ended—			Week ended—	
	Apr. 6, 1940	Apr. 8, 1939		Apr. 6, 1940	Apr. 8, 1939
<b>NEW ENG.</b>			<b>SO. ATL.—continued</b>		
Maine.....	61	86	South Carolina <sup>2</sup> .....	31	97
New Hampshire.....	21	1	Georgia <sup>3</sup> .....	42	29
Vermont.....	31	44	Florida.....	16	58
Massachusetts.....	132	206	<b>E. SO. CEN.</b>		
Rhode Island.....	8	54	Kentucky.....	115	13
Connecticut.....	26	85	Tennessee.....	43	13
<b>MID. ATL.</b>			Alabama <sup>2</sup> .....	23	39
New York.....	401	501	Mississippi <sup>1 2</sup> .....	-----	-----
New Jersey.....	116	234	<b>W. SO. CEN.</b>		
Pennsylvania.....	270	262	Arkansas.....	3	33
<b>E. NO. CEN.</b>			Louisiana.....	5	2
Ohio.....	180	133	Oklahoma.....	10	4
Indiana.....	21	38	Texas <sup>2</sup> .....	284	108
Illinois.....	148	256	<b>MOUNTAIN</b>		
Michigan <sup>1</sup> .....	114	148	Montana <sup>4</sup> .....	6	6
Wisconsin.....	82	279	Idaho.....	8	2
<b>W. NO. CEN.</b>			Wyoming.....	3	0
Minnesota.....	30	22	Colorado <sup>5</sup> .....	2	60
Iowa.....	11	10	New Mexico.....	70	8
Missouri.....	33	23	Arizona.....	30	6
North Dakota.....	0	25	Utah <sup>2</sup> .....	109	22
South Dakota <sup>1</sup> .....	5	2	<b>PACIFIC</b>		
Nebraska.....	1	8	Washington.....	64	15
Kansas.....	32	19	Oregon <sup>4</sup> .....	29	12
<b>SO. ATL.</b>			California <sup>3</sup> .....	372	152
Delaware.....	15	11	Total.....	3,521	3,562
Maryland <sup>2</sup> .....	216	25	14 weeks.....	41,351	58,313
Dist. of Col.....	14	33			
Virginia.....	58	61			
West Virginia <sup>2</sup> .....	124	34			
North Carolina.....	106	293			

<sup>1</sup> New York City only.

<sup>2</sup> Period ended earlier than Saturday.

<sup>3</sup> Typhus fever, week ended Apr. 6, 1940, 14 cases as follows: South Carolina, 2; Georgia, 3; Alabama, 8; Mississippi, 1; Texas, 4; California, 1.

<sup>4</sup> Rocky Mountain spotted fever, week ended Apr. 6, 1940, 3 cases as follows: Montana, 1; Oregon, 2.

<sup>5</sup> Colorado tick fever, week ended Apr. 6, 1940, Colorado, 2 cases.

## WEEKLY REPORTS FROM CITIES

City reports for week ended March 23, 1940

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
<b>Data for 90 cities:</b>											
5-year average	152	526	114	8,054	881	2,464	29	391	22	1,246	
Current week <sup>1</sup>	74	252	74	1,985	537	2,084	0	336	16	838	
<b>Maine:</b>											
Portland	0		0	63	3	0	0	1	0	2	22
<b>New Hampshire:</b>											
Concord	0		0	1	0	0	0	0	0	0	12
Manchester	0		1	10	1	0	0	0	0	0	18
Nashua	0		0	52	0	0	0	0	0	0	7
<b>Vermont:</b>											
Barre											
Burlington	0		0	0	0	0	0	0	0	1	12
Rutland	0		0	0	0	0	0	0	0	0	8
<b>Massachusetts:</b>											
Boston	1		1	52	13	45	0	6	0	39	246
Fall River	0		0	14	1	2	0	0	0	2	39
Springfield	0		0	1	1	5	0	0	0	7	41
Worcester	0		0	7	5	2	0	1	0	2	55
<b>Rhode Island:</b>											
Providence	0	1	0	81	4	12	0	2	0	2	79
<b>Connecticut:</b>											
Bridport	0	1	1	0	1	1	0	0	0	0	32
Hartford	0		0	0	3	3	0	0	4	4	37
New Haven	1	5	0	1	2	1	0	0	0	0	40
<b>New York:</b>											
Buffalo	0		1	1	11	12	0	6	0	5	131
New York	13	28	6	74	120	794	0	84	0	124	1,621
Rochester	1	5	0	4	1	11	0	3	0	12	74
Syracuse	0		0	0	4	10	0	1	0	9	64
<b>New Jersey:</b>											
Camden	0	1	1	0	4	11	0	0	0	0	35
Newark	0	2	0	119	5	32	0	4	0	19	108
Trenton	0		1	0	3	4	0	2	0	0	30
<b>Pennsylvania:</b>											
Philadelphia	1		2	26	32	95	0	22	5	16	511
Pittsburgh	2	2	2	5	8	26	0	5	1	4	171
Reading	0		0	1	2	0	0	1	0	7	29
Scranton	0			1		3	0		0	0	
<b>Ohio:</b>											
Cincinnati	0		2	0	6	7	0	3	0	6	142
Cleveland	1	33	4	4	19	24	0	8	0	27	206
Columbus	0	1	1	2	3	4	0	1	0	4	93
Toledo	0		0	1	4	38	0	10	0	7	101
<b>Indiana:</b>											
Anderson	0		0	0	1	4	0	0	0	9	11
Fort Wayne	0		0	0	1	2	0	0	0	0	29
Indianapolis	3		1	4	4	27	0	5	0	7	107
Muncie	0		1	0	2	3	1	0	0	0	22
South Bend	0		0	0	5	0	0	0	0	4	16
Terre Haute											
<b>Illinois:</b>											
Alton	0		0	1	1	2	0	0	0	3	15
Chicago	8	7	5	33	20	530	0	43	0	43	745
Elgin	0		0	1	1	3	0	0	0	0	10
Moline	0		0	0	0	3	0	0	0	0	14
Springfield	0		0	1	2	3	0	0	0	1	20
<b>Michigan:</b>											
Detroit	1	2	1	19	15	67	0	10	3	32	257
Flint	0		1	9	5	27	0	0	0	12	19
Grand Rapids											
<b>Wisconsin:</b>											
Kenosha	0		0	10	0	2	0	0	0	0	8
Madison	0		0	0	0	0	0	0	0	1	15
Milwaukee	0		0	8	4	25	0	0	0	0	102
Racine	0		0	1	0	1	0	0	0	0	11
Superior	0		0	58	0	2	0	0	0	0	10

<sup>1</sup> Figures for Barre, Terre Haute, and Grand Rapids estimated; reports not received.

City reports for week ended March 23, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
<b>Minnesota:</b>											
Duluth	0		1	104	1	1	0	1	0	0	26
Minneapolis	0		0	1	3	14	0	1	0	2	79
St. Paul	0		0	3	7	10	0	0	0	6	60
<b>Iowa:</b>											
Cedar Rapids	0			17		1	0		0	1	
Davenport	0			9		3			0	0	
Des Moines	1		0	4	0	4	3	0	0	0	41
Sioux City	0			0		0			0	0	
Waterloo	1			1		2	0		0	0	
<b>Missouri:</b>											
Kansas City	0	1	3	2	5	22	0	3	0	0	99
St. Joseph	0		1	0	2	2	0	0	0	1	24
St. Louis	1		0	1	10	19	0	7	0	11	188
<b>North Dakota:</b>											
Fargo	0		0	2	0	0	0	0	0	0	8
Grand Forks	0			0	0	0			0	0	
Minot	1		0	1	0	2	0	0	0	0	7
<b>South Dakota:</b>											
Aberdeen	0			0		0	0		0	2	
<b>Nebraska:</b>											
Lincoln	1			1		2	0		0	0	
Omaha	0		0	4	6	7	0	2	0	1	68
<b>Kansas:</b>											
Lawrence	0		0	0	0	0	0	0	0	0	5
Topeka	0		0	1	3	2	0	0	0	0	12
Wichita	1		0	268	4	1	0	1	0	2	25
<b>Delaware:</b>											
Wilmington	0		0	0	4	2	0	1	0	3	32
<b>Maryland:</b>											
Baltimore	0	18	1	1	26	13	0	8	0	242	237
Cumberland	0		0	0	0	0	0	0	0	0	13
Frederick	0		0	0	0	0	0	0	0	0	1
<b>Dist. of Col.:</b>											
Washington	13	2	1	1	13	37	0	10	1	14	198
<b>Virginia:</b>											
Lynchburg	0		1	1	0	0	0	0	0	6	9
Norfolk	1	36	0	10	2	2	0	2	0	0	33
Richmond	0		3	0	1	1	0	2	0	1	53
Roanoke	0		0	0	2	1	0	0	0	0	11
<b>West Virginia:</b>											
Charleston	1	3	0	0	5	1	0	1	0	0	16
Huntington	1			0		2	0	0	0	0	
Wheeling	0		0	0	3	1	0	0	0	0	28
<b>North Carolina:</b>											
Gastonia	0			0		0			0	0	
Raleigh	1			0	0	0		1	0	0	17
Wilmington	0		0	0	1	1	0	0	0	0	15
Winston-Salem	0		0	0	2	2	0	2	0	0	22
<b>South Carolina:</b>											
Charleston	0	18	2	1	0	0	0	1	0	0	19
Florence	0	8	1	0	2	0	0	0	0	0	14
Greenville	0		0	1	2	0	0	0	0	0	6
<b>Georgia:</b>											
Atlanta	1	16	2	16	5	2	0	7	0	2	91
Brunswick	0		0	1	0	1	0	0	0	0	1
Savannah	0	19	2	2	3	2	0	2	0	0	40
<b>Florida:</b>											
Miami	1	2	1	1	4	2	0	2	1	0	42
Tampa	1	3	2	80	1	0	0	1	0	0	28
<b>Kentucky:</b>											
Ashland	0	2	0	4	1	0	0	0	0	7	6
Covington	0		0	0	1	3	0	0	0	0	14
Lexington	0		0	0	1	0	0	2	0	1	18
Louisville	0	10	0	3	5	18	0	3	0	26	62
<b>Tennessee:</b>											
Knoxville	0	1	0	1	5	18	0	0	1	0	38
Memphis	0		3	7	4	19	0	5	0	12	90
Nashville	0		4	1	8	1	0	4	0	2	62
<b>Alabama:</b>											
Birmingham	1	8	3	3	3	0	0	6	0	0	69
Mobile	0	4	1	2	3	0	0	2	0	0	22
Montgomery	1	5		10		2	0		0	0	
<b>Arkansas:</b>											
Fort Smith	0	3		0		0		0	0	0	
Little Rock	0	8	1	2	5	1	0	0	0	0	

## City reports for week ended March 23, 1940—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Louisiana:											
Lake Charles.....	0		0	0	1	0	0	0	2	0	6
New Orleans.....	5	12	3	0	13	13	0	13	1	1	150
Shreveport.....	0		1	0	5	0	0	1	0	1	36
Oklahoma:											
Oklahoma City.....	0	8	2	0	1	1	0	0	0	2	42
Tulsa.....	0		1	1		8	0		0	13	
Texas:											
Dallas.....	4	2	2	23	7	1	0	3	0	13	71
Fort Worth.....	0		2	1	6	4	0	3	0	18	42
Galveston.....	0	0	0	4	0	0	2	0	0	0	22
Houston.....	1	1	1	3	5	1	0	4	0	2	71
San Antonio.....	0	2	1	80	14	1	0	6	1	6	70
Montana:											
Billings.....	0		0	2	0	0	0	0	0	0	10
Great Falls.....	0		0	0	1	0	0	0	0	0	8
Helena.....	0		0	2	0	0	0	0	0	0	2
Missoula.....	1	1	0	0	2	2	0	0	0	0	10
Idaho:											
Boise.....	0		0	1	1	0	0	0	0	0	11
Colorado:											
C o l o r a d o											
Springs.....	0		0	0	0	0	0	0	0	0	10
Denver.....	4		0	9	8	11	0	2	0	0	80
Pueblo.....	0		0	2	3	9	0	0	0	0	9
New Mexico:											
Albuquerque.....	0		0	1	0	0	0	0	1	1	7
Utah:											
Salt Lake City.....	0		0	223	2	7	0	0	0	54	32
Washington:											
Seattle.....	0		1	445	7	2	0	2	0	21	90
Spokane.....	0		0	3	1	4	0	0	0	2	43
Tacoma.....	0		0	29	1	10	0	0	0	0	38
Oregon:											
Portland.....	2	1	1	244	3	1	0	1	0	13	91
Salem.....	0			11		0	0		0	0	
California:											
Los Angeles.....	1	43	2	15	10	29	0	14	0	21	356
Sacramento.....	0	1	0	1	2	3	0	3	0	6	25
San Francisco.....	1	2	1	1	10	13	0	10	0	12	172

State and city	Meningitis, meningococcus		Polio-myelitis cases	State and city	Meningitis, meningococcus		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Rhode Island:				District of Columbia:			
Providence.....	0	1	0	Washington.....	1	0	0
New York:				Louisiana:			
Buffalo.....	3	1	0	New Orleans.....	2	0	0
Pennsylvania:				Texas:			
Philadelphia.....	1	0	0	Dallas.....	1	1	0
Scranton.....	2	0	0	Montana:			
Indiana:				Great Falls.....	0	0	1
Indianapolis.....	0	0	1	California:			
Illinois:				Los Angeles.....	0	0	1
Chicago.....	3	1	0				

*Encephalitis, epidemic or lethargic.*—Cases: Baltimore, 1; Great Falls, 1.

*Pellagra.*—Cases: Birmingham, 2.

*Typhus fever.*—Cases: Mobile, 1; Fort Worth, 1.

## FOREIGN REPORTS

### CANADA

*Manitoba—Typhoid fever.*—Under date of March 28, 1940, it was reported that 44 cases of typhoid fever had been hospitalized in the city of St. Boniface, Manitoba, Canada. The reported area of infection was centered in St. Boniface and in the adjacent rural district of St. Anne.

*Provinces—Communicable diseases—Weeks ended March 2 and 9, 1940.*—During the weeks ended March 2 and 9, 1940, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

#### Week ended March 2, 1940

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis			1	2						3
Chickenpox		15	16	295	451	58	26	7	105	973
Diphtheria			2	23	1	11	3			40
Dysentery				6						6
Influenza		46			31	2				148
Measles			1	190	660	760	136	7	17	1,771
Mumps				31	389	34	84	1	3	542
Pneumonia		10			22		3		10	45
Poliomyelitis				2			1			3
Scarlet fever		7	5	113	187	13	30	26	8	389
Trachoma							1			1
Tuberculosis		9	16	82	48	4		1		160
Typhoid and paratyphoid fever			1	15		1				17
Whooping cough		4		137	94	34	62	11	17	359

NOTE.—No cases of the above diseases were reported from Prince Edward Island for the above period.

#### Week ended March 9, 1940

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis	1									1
Chickenpox		16	1	183	430	21	55	1	102	809
Diphtheria		1	1	15	2	3	3			25
Dysentery				2						2
Influenza		57			174	1			135	367
Measles		10	1	138	820	678	78	1	51	1,777
Mumps		2		52	492	13	18		2	579
Pneumonia	5	8			31	2			8	54
Scarlet fever	1	17	8	77	197	14	7	4	9	334
Trachoma							2		5	7
Tuberculosis	1	17	14	53	59	5				149
Typhoid and paratyphoid fever			1	9	1	3				14
Whooping cough		33	2	138	158	25	38	4	18	416

## CUBA

*Provinces—Notifiable diseases—4 weeks ended March 2, 1940.*—During the 4 weeks ended March 2, 1940, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....	4	2	2	5	.....	5	18
Chickenpox.....	2	13	7	6	1	1	30
Diphtheria.....	2	13	1	1	2	2	21
Hookworm disease.....	.....	31	.....	.....	.....	.....	31
Leprosy.....	1	.....	.....	.....	2	2	5
Malaria.....	12	.....	.....	34	6	37	89
Measles.....	.....	1	1	1	.....	1	4
Poliomyelitis.....	.....	.....	.....	1	.....	3	4
Scarlet fever.....	.....	2	3	.....	.....	.....	5
Tuberculosis.....	17	36	29	36	12	36	166
Typhoid fever.....	15	50	6	18	16	44	149
Whooping cough.....	.....	.....	.....	1	.....	.....	1
Yaws.....	.....	.....	.....	.....	.....	5	5

## ITALY

*Communicable diseases—4 weeks ended December 31, 1939.*—For the 4 weeks ended December 31, 1939, cases of certain communicable diseases were reported in Italy as follows:

Disease	Dec. 4-10	Dec. 11-17	Dec. 18-24	Dec. 25-31
Anthrax.....	11	8	9	13
Cerebrospinal meningitis.....	29	18	33	28
Chickenpox.....	314	402	327	214
Diphtheria.....	850	801	685	642
Dysentery (amoebic).....	9	23	18	6
Dysentery (bacillary).....	2	2	.....	2
Hookworm disease.....	21	7	40	14
Lethargic encephalitis.....	3	.....	1	1
Measles.....	920	846	768	592
Mumps.....	223	203	164	135
Paratyphoid fever.....	96	80	62	46
Poliomyelitis.....	37	48	30	36
Puerperal fever.....	35	26	29	20
Scarlet fever.....	284	271	244	169
Typhoid fever.....	389	404	297	280
Undulant fever.....	31	34	39	28
Whooping cough.....	263	254	234	184

## SWITZERLAND

*Communicable diseases—January 1940.*—During the month of January 1940, cases of certain communicable diseases were reported in Switzerland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	77	Paratyphoid fever.....	1
Chickenpox.....	187	Poliomyelitis.....	12
Diphtheria and croup.....	52	Scarlet fever.....	480
German measles.....	30	Tuberculosis.....	200
Influenza.....	4,692	Typhoid fever.....	9
Measles.....	1,574	Undulant fever.....	1
Mumps.....	120	Whooping cough.....	260

## YUGOSLAVIA

*Notifiable diseases—4 weeks ended February 25, 1940.*—During the 4 weeks ended February 25, 1940, certain notifiable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	16	1	Paratyphoid fever.....	9	1
Cerebrospinal meningitis.....	415	96	Poliomyelitis.....	3	1
Diphtheria and croup.....	546	70	Scarlet fever.....	250	4
Dysentery.....	9	1	Sepsis.....	7	5
Erysipelas.....	198	9	Tetanus.....	10	6
Favus.....	5	—	Typhoid fever.....	185	26
Leprosy.....	1	—	Typhus fever.....	68	9
Lethargic encephalitis.....	2	—			

**REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK**

NOTE.—A cumulative table giving current information regarding the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS of March 29, 1940, pages 567-571. A similar table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

**Plague**

*Bolivia—Correction.*—A correction has been received of a report of 30 cases of plague in Bolivia during the period October 1 to December 31, 1939, which was published in the PUBLIC HEALTH REPORTS of February 23, 1940, page 343. These cases were not plague but influenzal pneumonia.

**Smallpox**

*Japan.*—According to a report dated March 27, 1940, the total number of new cases of smallpox in Japan from January 1 to March 25, 1940, was 262, of which 159 cases had occurred since March 15, 1940. For the same period Tokyo reported 17 cases of smallpox and Osaka 29 cases. Compulsory vaccination was being carried out.

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